# SE5404D Series

# Multi-Port Serial Server

## User's Manual

**Version 1.0**

**December, 2010**

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# Important Announcement

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Thank you for purchasing SE5404D Ethernet-Serial Server product. This document intends to provide customers with brief descriptions about the product and to assist customers to get started. For detail information and operations of the product, please refer to the product user's manual in the product CD or diskette.

# FCC WARNING

## Class A for Ethernet Serial Server (Model SE5404D series)

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and radiates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expenses.

A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord can be used.

Use only shielded cables to connect other devices to this equipment by RS-232 or RS-485 ports.

Be cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

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# 1. Introduction

Many industrial and Commercial devices equipped with slow serial communication ports—RS-232, RS-485, and RS-422—are limited in their transmission distance of 15 m. Examples of these devices are PLC controllers, card readers, display signs, security controls, CNC controller, etc. ATOP Technologies has overcome the limit with a family of SE5404D Series Ethernet Serial Servers. The SE5404D sever family is designed to transmit data between one-or-more serial device and one-or-more TCP/IP device through Ethernet, and hence enhance the accessibility of the serial device through the ubiquitous TCP/IP based Ethernet.

Of the SE series, the SE5404D is for RS-232/RS-422/RS-485 9 pin D-Sub without isolation protection built-in and SE5404D-S5 is for RS-422/RS-485 5 pin Terminal Block without isolation protection built-in, while SE5404D-Sis is for RS-422/ RS-485 with built-in isolation protection.

## 1.1 Packaging

Please check your package contains the following items:

- ◎SE5404D/ SE5404D-S5 / SE5404D-Sis Ethernet Serial Server
- Quick Start Guide with Warranty Card
- Product CD
- 7-pin Terminal Block ( 2ESDV-07P) x1
- Four 5-pin Terminal Block for COMs (SE5404D-S5 / SE5404D-Sis only)

**Optional Accessories：**

- Power Adapter
- Wall Mounting Kit

  Atop P/N: 202EH731000003G

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## 1.2 Application Connectivity

**TCP Server Mode：** SE5404D can be configured as a TCP server on TCP/IP Network to wait for other applications (clients) in host computer to establish a connection with the serial device. After the connection is established between serial device and host computer, data can be transmitted in both directions Figure 1.1.

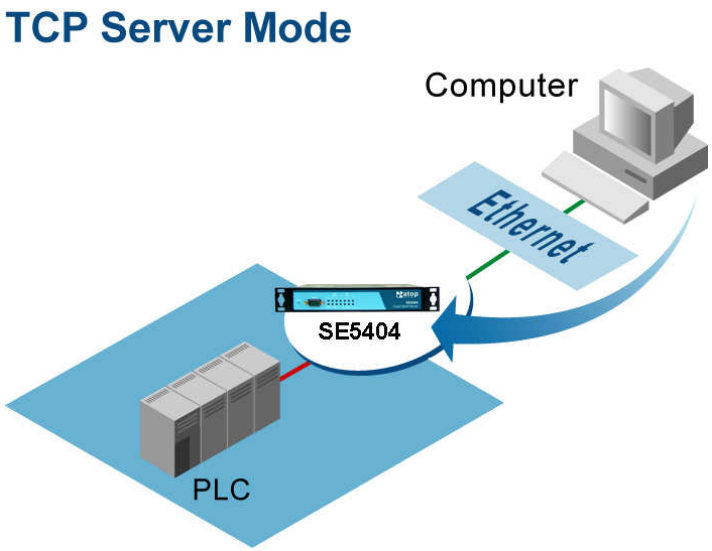


Figure 1.1 TCP Server Mode

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**TCP Client Mode：** SE5404D can be configured as a TCP client on TCP/IP Network to actively establish a connection with other applications(server) in host computer. After the connection is established, data can be transmitted between serial device and host computer in both directions (Figure 1.2).

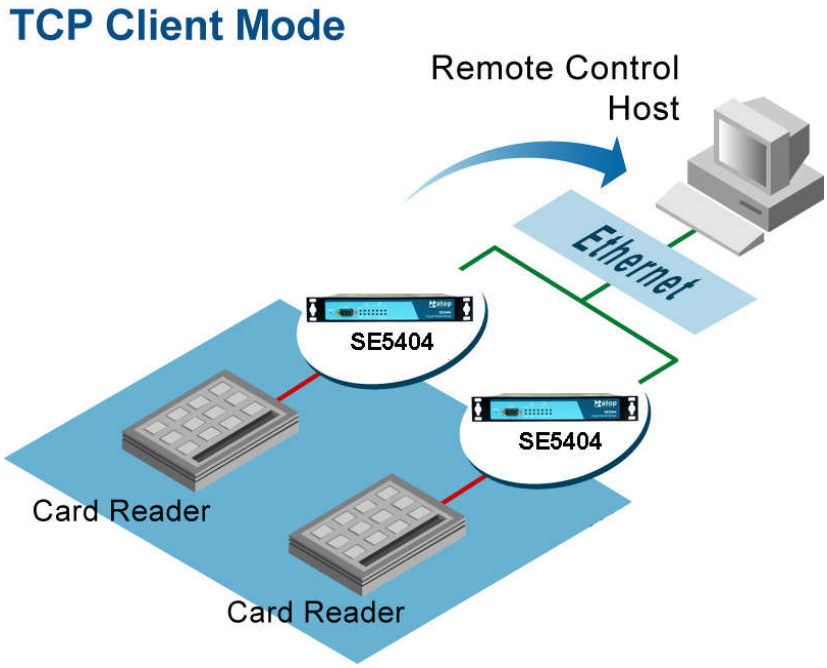


Figure 1.2 TCP Client Mode

**UDP Mode：** UDP is a faster but non-guaranteed datagram delivery protocol.SE5404D can be configured as a UDP mode on TCP/IP Network to establish a connection using unicast data from the serial device to one or multiple host computers (Figure 1.3) Vice versa is also true.

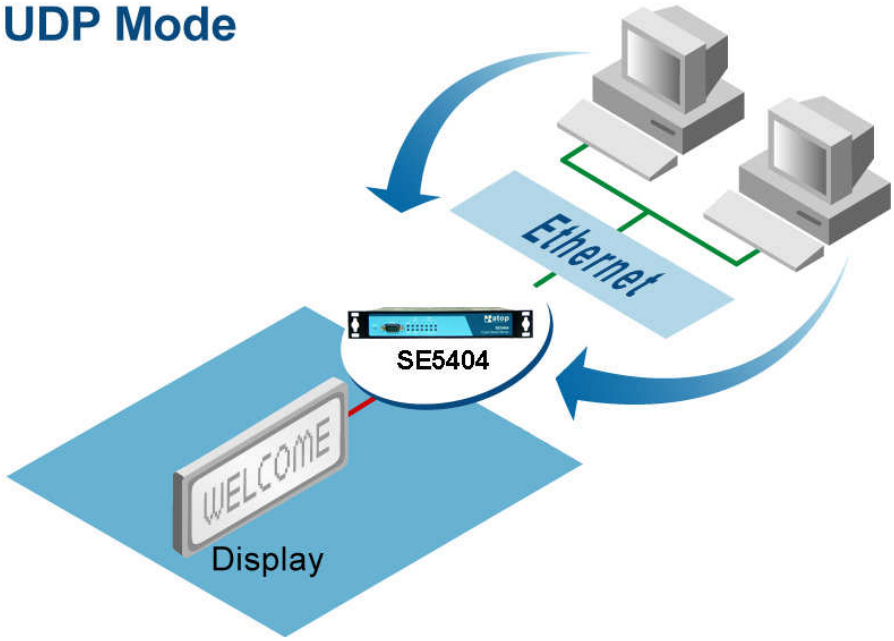


Figure 1.3 UDP Mode

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# 2. Hardware setup

**NOTE:**

1. **SE5404D** (RS-232/422/485 DB9 without isolation ),
2. **SE5404-S5** (RS422/485 TB5 with isolation)
3. **SE5404D-Sis** (RS422/485 TB5 with isolation)
4. You can press the **Default** button of SE5404D to reset the settings to the default value

Figure 2.1 Show the names of SE5404D components.

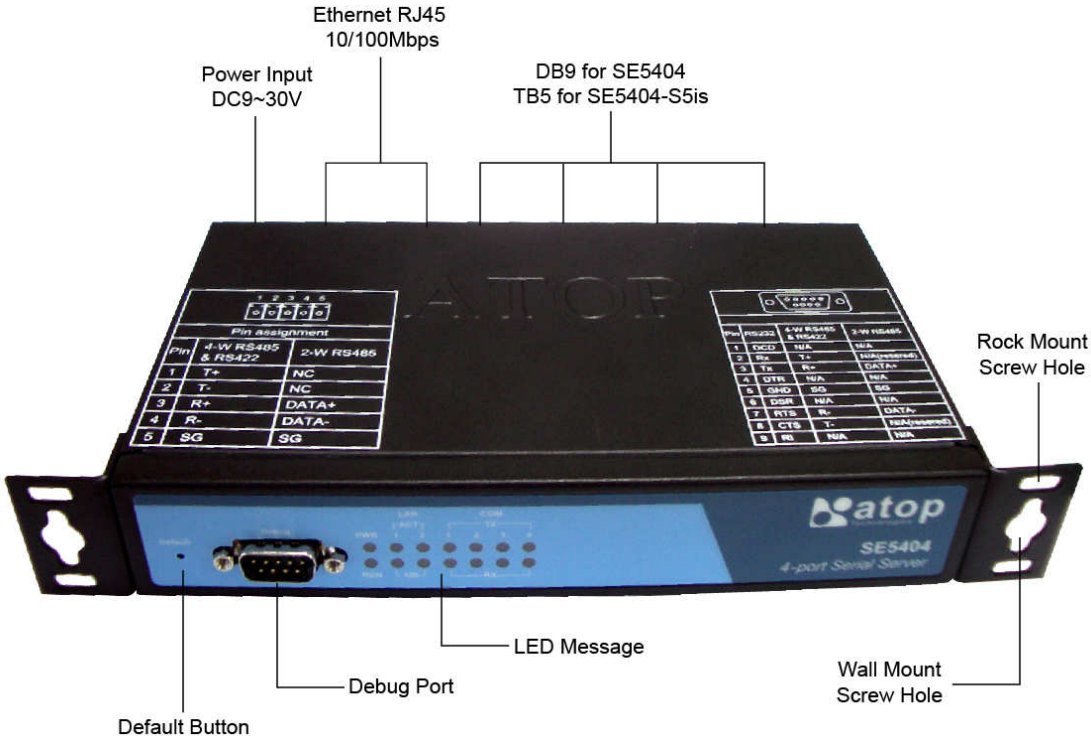


Figure 2.1 Casing and DIN-Rail Mounting

## 2.1 LED Indicators

### 2.1.1 LAN LED

| Message | Description |
|---|---|
| LAN1(2) 100 Off and ACT Off | Ethernet Disconnected |
| LAN1(2) 100 Off and ACT On | Ethernet 10Mbps connected |
| LAN1(2) 100 On | Ethernet 100Mbps connected |
| ACT Blinking with Green | Data is transmitting on Ethernet for 100Mbps |

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**Table 1. LAN LED Message**

### 2.1.2 COM Port LED

| Message | Description |
|---|---|
| COM1(2/3/4) TX LED off | No data is transmitting on COM port |
| COM1(2/3/4) TX LED on blinking state | Data is transmitting on COM port |
| COM1(2/3/4) RX LED off | No data is receiving on COM port |
| COM1(2/3/4) RX LED on blinking state | Data is receiving on COM port |

**Table 2. COM Port LED Message**

### 2.1.3 RUN

| Message | Description |
|---|---|
| Off | AP firmware malfunction or power is not properly on |
| Blinking (rate: 0.5 Sec) | AP firmware running normally |

**Table 3. RUN LED Status**

### 2.1.4 Power LED

| Message | Description |
|---|---|
| Off | AP firmware malfunction or power is not properly on running |
| On(rate: 0.5 Sec) | Power on normally |

**Table 3. Power LED Message**

## 2.2 Installation Procedures

**Step 1**: Connect SE5404D to power source

**Step 2**: Connect SE5404D to the Ethernet network. Use a standard straight-through or cross-over Ethernet cable Always make sure the PC is on the same network subnet as SE5404D.

**Step 3**: Connect SE5404D's serial port to a serial device.

**Step 4**: Mount SE5404D to a Din Rail.

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# 3. Software Setup

SE5404D Ethernet-Serial Server is shipped with default settings shown in the following table:

| Property | | Default Value |
|---|---|---|
| LAN1 | IP Address | **10.0.50.100** |
| | Gateway | **10.0.0.254** |
| | Subnet Mask | **255.255.0.0** |
| LAN2 | IP Address | **192.168.1.1** |
| | Gateway | **192.168.1.254** |
| | Subnet Mask | **255.255.255.0** |
| User Name | | **admin** |
| Password | | **null (leave it blank)** |
| COM (1/2/3/4) | | 9600,None, 8, 1, No Flow Control, Serial packet delimiter enabled |
| COM (1/2/3/4)Link Mode | | Type: TCP Server, Listen port 4660, Filter=0.0.0.0, Virtual COM disabled |
| SysName of SNMP | | name |
| SysLocation of SNMP | | location |
| SysContact of SNMP | | contact |

## 3.1 Configuration by SerialManager Utility

### 3.1.1.Static IP

Figure 3.1 Configure by SerialManager Utility

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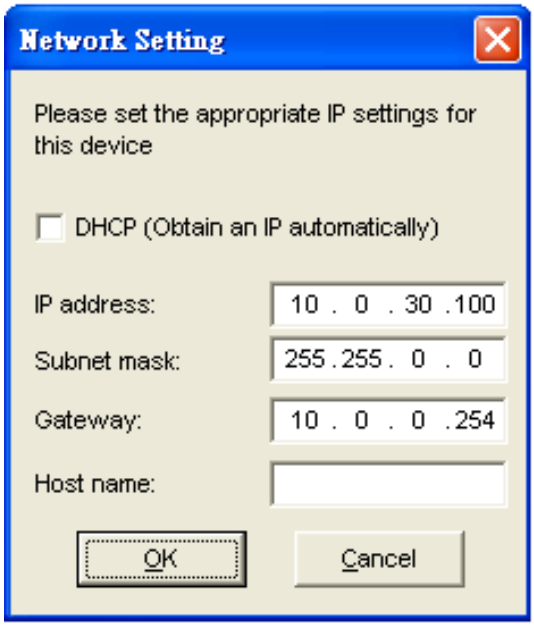


**Figure 3.2 Static IP setup dialog window**

### 3.1.2 DHCP client (Dynamic IP)

A DHCP server can automatically assign the IP address and network settings. SE5404D supports the DHCPclient function. By default, the DHCP client function on SE5404D is disabled; one can client use SerialManager Utility software to search network information automatically by putting a check on **Auto IP** on Dialog window. (ref Figure 3.1)SE5404D (Figure 3.2) (ref Figure 3.3)SE5404D

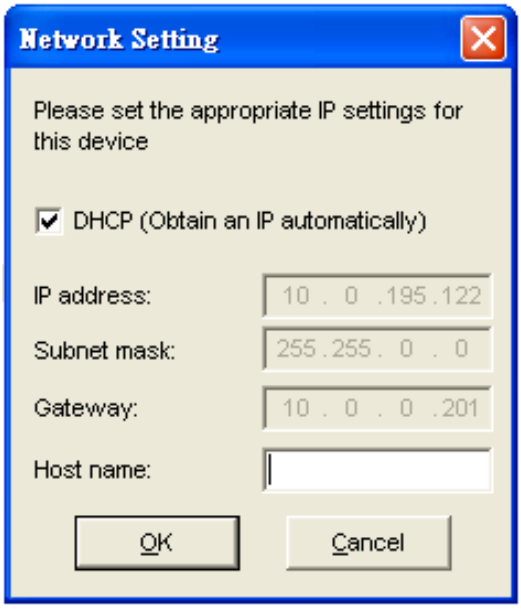


**Figure 3.3 SerialManager Utility Auto IP**

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## 3.2 Telnet Configuration

One may also use Telnet utility to change configuration settings.

- Open MS-DOS command prompt window or other telnet tools
- Enter the “Telnet IP_address” (For example, Telnet 10.0.50.100). The system will prompts for a user and password, the default User is “admin” and password is Null *(Leave it blank)*.

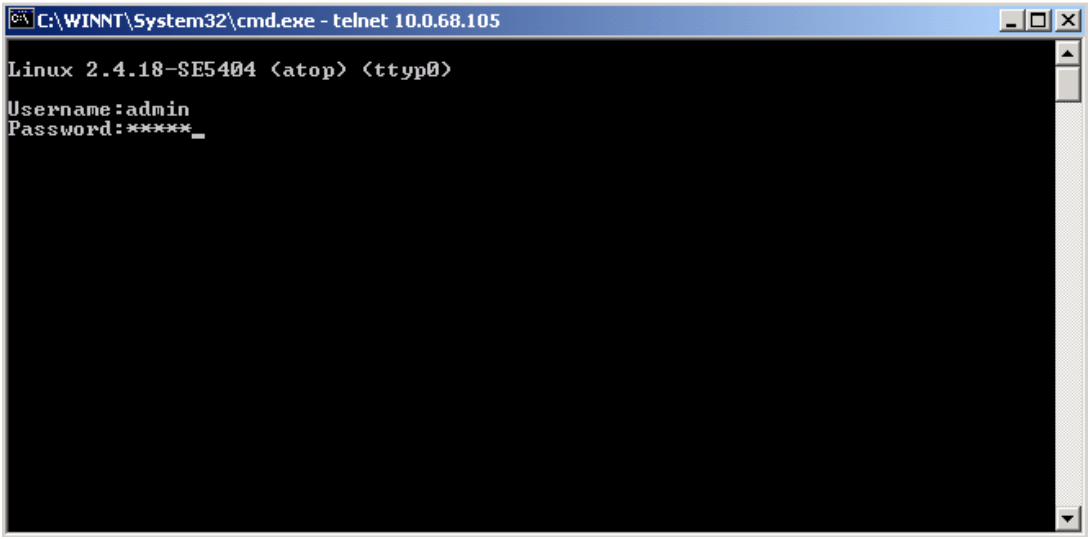


**Figure 3.4 System Login by Telnet**

Then the following main menu shall appear.

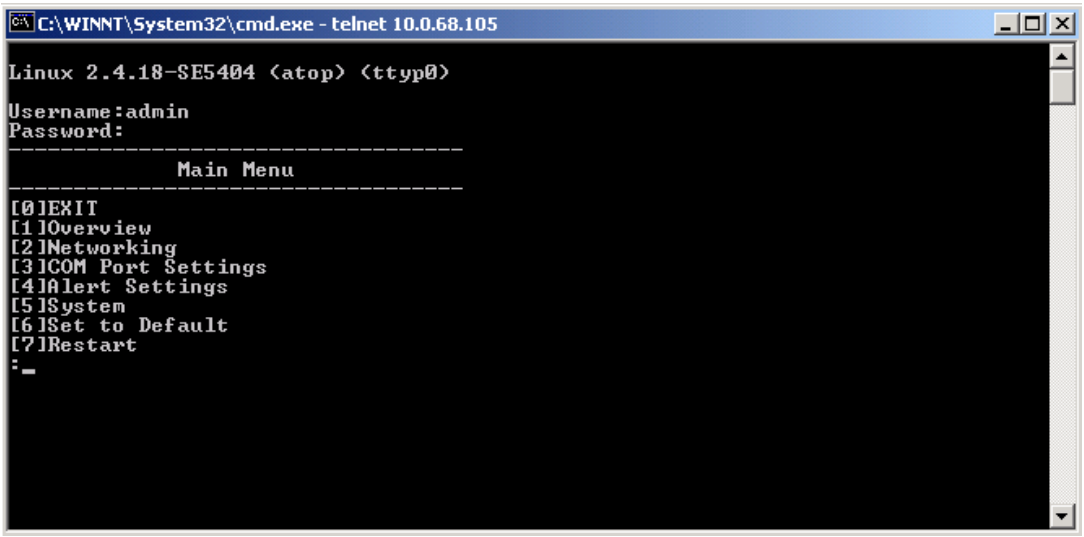


**Figure 3.5 Main menu of Telnet**

❋ **Note: If the Serial Server does not receive any command within 3 minutes, Telnet will be terminated automatically.**

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### 3.2.1 General Information

**Operation: Main→[1]Overview**

This system overview window gives the general information on Ethernet, MAC address, kernel and AP version.

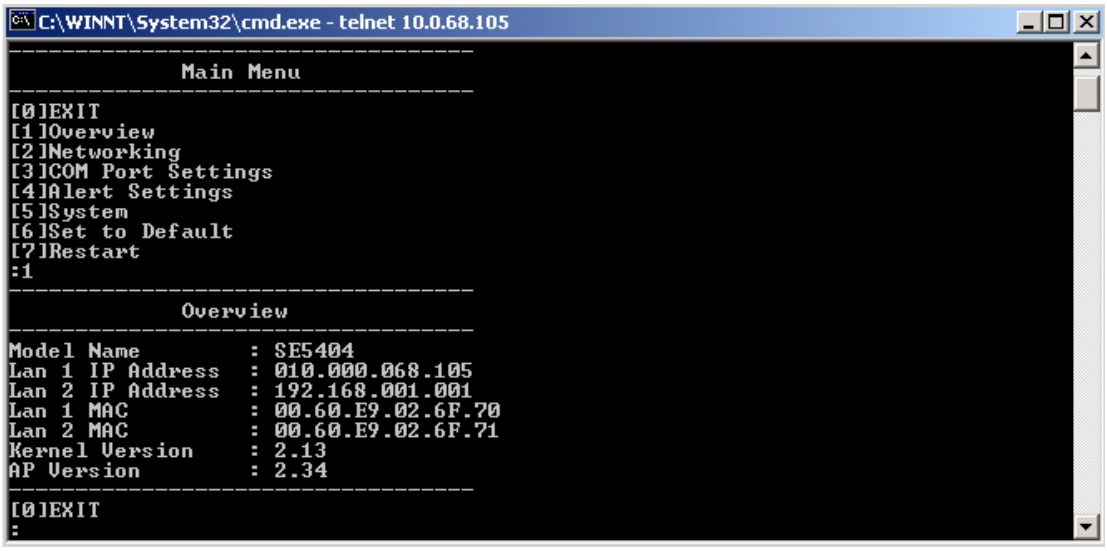


**Figure 3.6 Overview Information by Telnet**

### 3.2.2 Networking Configuration

**Operation: Main→[2]Networking**

This section allows for changes in **IP address, subnet mask, gateway IP address and SNMP** information. Please note that setting changes will not take effect until the device is restarted.

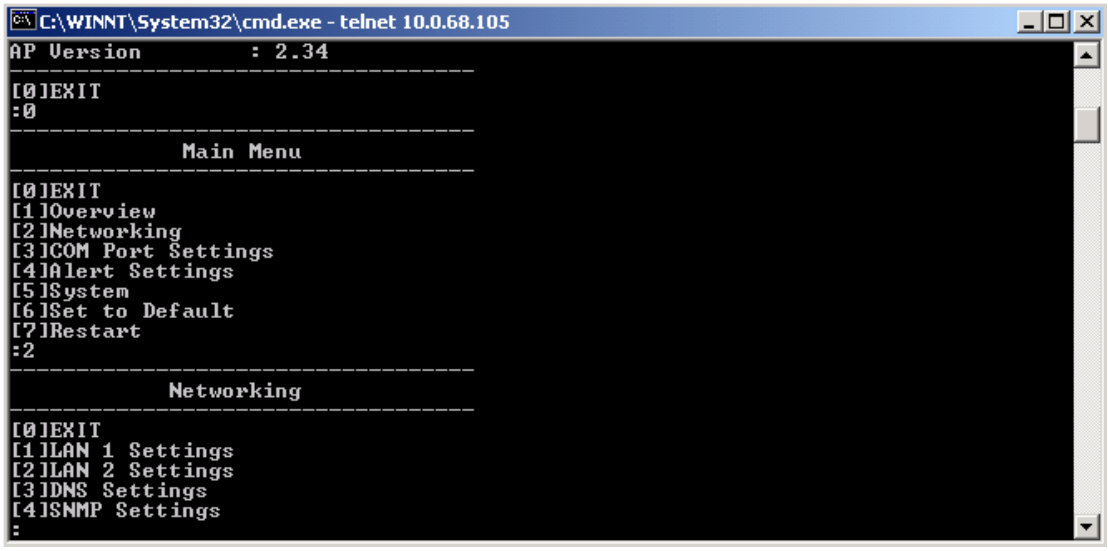


**Figure 3.7 Network Settings by Telnet**

❋ **Note: Press "*ESC*" key to return to the previous menu**

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### 3.2.3 LAN Settings

**Operation: Main→[2]Networking→[1]LAN 1 Settings**

Enter "***LAN 1 settings***", and there is all information at this section about IP address, gateway, subnet mask and IP mode (static/DHCP) of LAN 1.

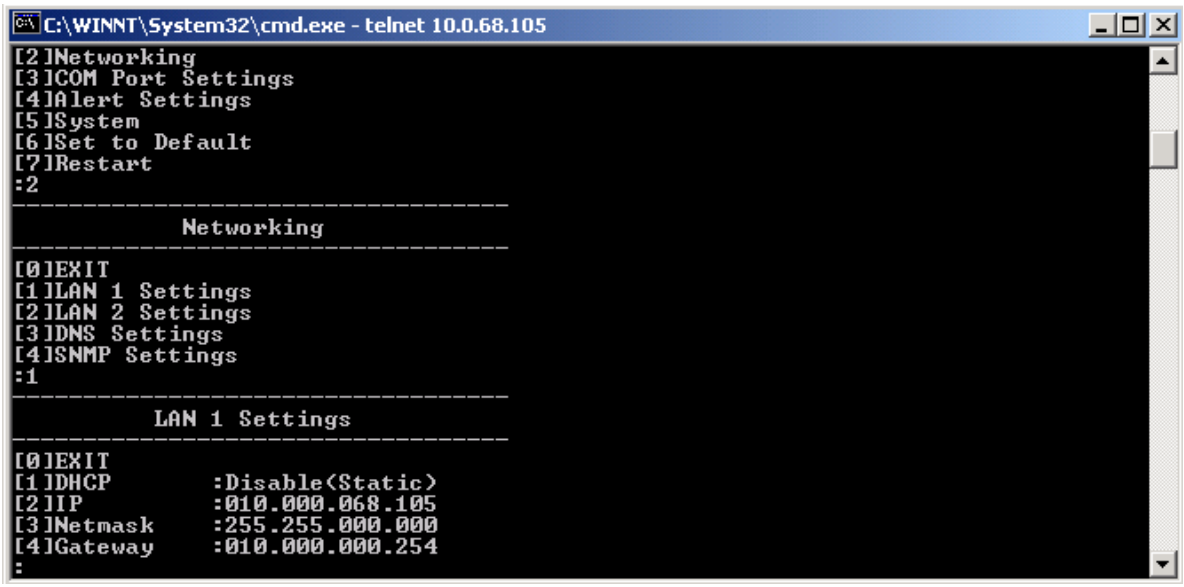


**Figure 3.8 LAN 1 Settings by Telnet**

**Operation: Main→[2]Networking→[2]LAN 2 Settings**

**Enter "*LAN 2 settings*", and there is all information at this section about IP address, gateway, subnet mask and IP mode (static/DHCP) of LAN 2.**

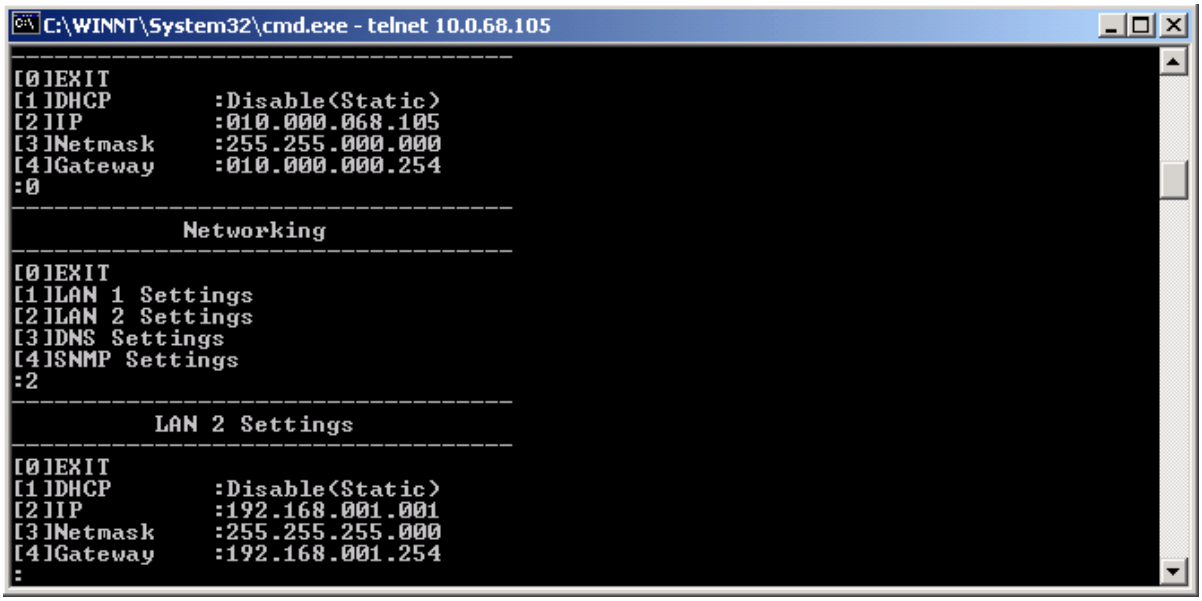


**Figure 3.9 LAN 2 Settings by Telnet**

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### 3.2.4 DNS Settings

**Operation: Main→[2]Networking→[3]DNS Settings**

Serial Server is able to configure the DNS1 or DNS2 Server IP Address manually. Alternatively, you can set the Serial Server to receive DNS server IP address from DHCP server automatically by enabling the DHCP of "***LAN 1 Settings***".

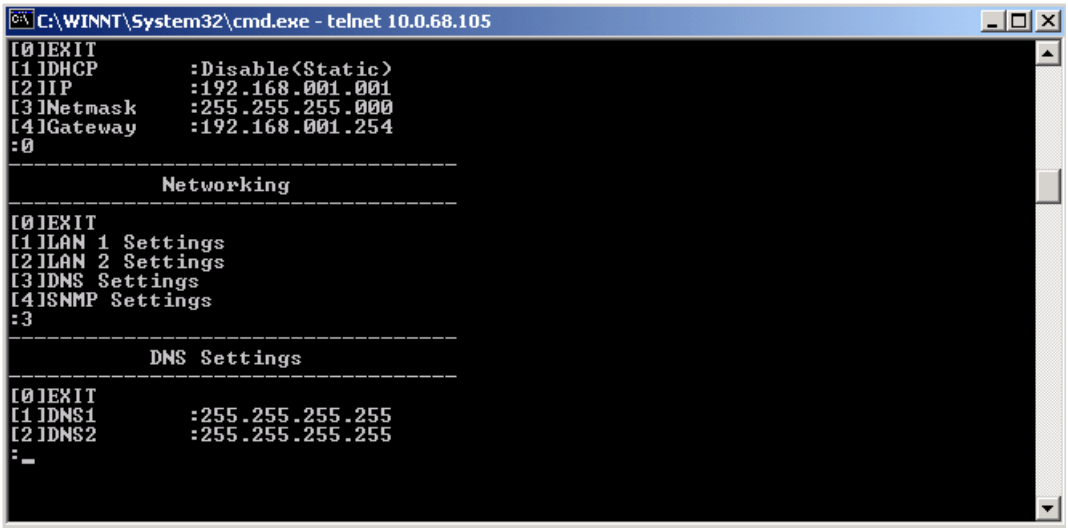


**Figure 3.10 DNS Settings by Telnet**

### 3.2.5 SNMP Settings

**Operation: Main→[2]Networking→[4]SNMP Settings**

Serial Server allows the user to Enable or Disable the SNMP function by choose the "***[4] SNMP: Disable***" and select "***Enable***" to enable the **SNMP** operation. The changes will effective immediately.

Serial Server supports basic SNMP function about system MIB (Management Information Base). It is able to definite the SNMP Trap server, Read/Write Community, SysName (System Name), SysLocation (System Location) and SysContact (System Contact) via Telnet console.

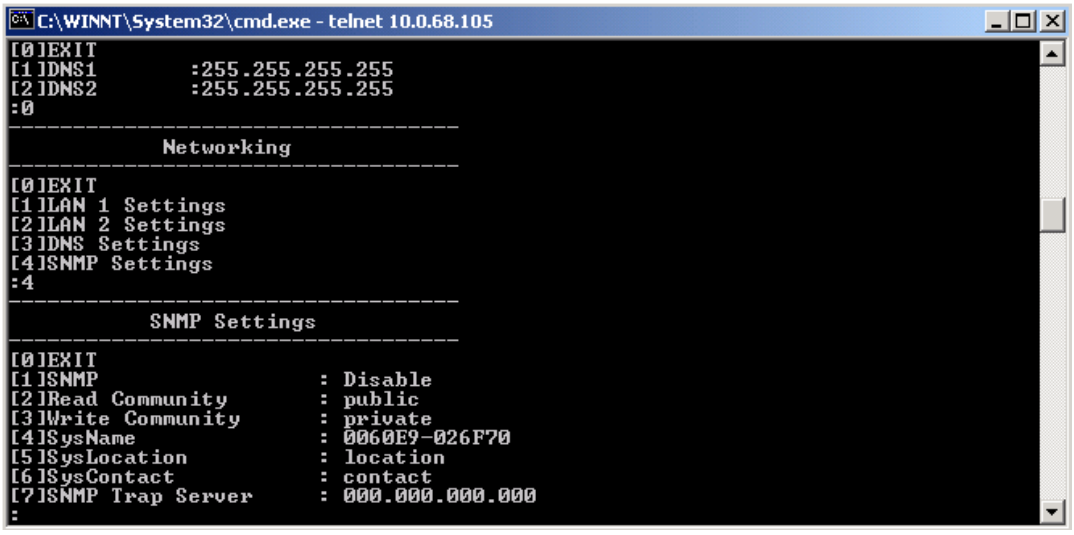


**Figure 3.11 SNMP Settings by Telnet**

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### 3.2.6 COM Port Configuration

SE5404D series allow one to configure the parameters of COM port including COM working mode, port parameters, enabling or disabling serial buffer's data and packet delimiter setting.

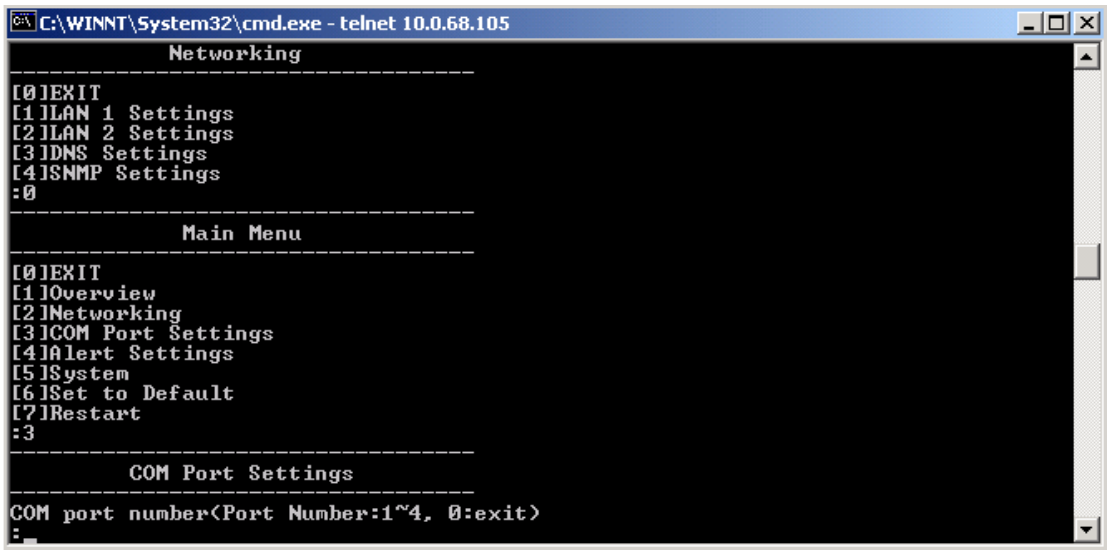


**Figure 3.12 Select COM Port from Serial Settings by Telnet**

### 3.2.7 TCP Server for Link Mode

**Operation: Main→ [3]COM Port Setting→[1-16]Select Port→[1]Link Mode→[1]TCP Server**

TCP Server mode is default setting for Link mode of serial settings, and it can be configured in a TCP server mode on an Ethernet Network to waiting for the host computers to establish a connection with the serial device (the client). After the connection is established, data can flow in both directions and can wait for connect request from remote PC with installed "serial-to IP" tool or counter-pair Serial server in tunneling mode. It needs to configure listening port to establish connection, Default Port number of Serial Server is 4660 and it is associated with the serial port COM1. After the application program being connected to the TCP port 4660 on the Serial Server, data of your application program are transparent to both COM1 and Serial Server.

IP filtering function is a simple ACL (Access Control List). Set FILTER_IP to "0.0.0.0" for disabling the "***IP filtering function***".

One may configure one or group IPs for source IP. If IP filter is enabled, only source IP assigned is connected to Serial Server.

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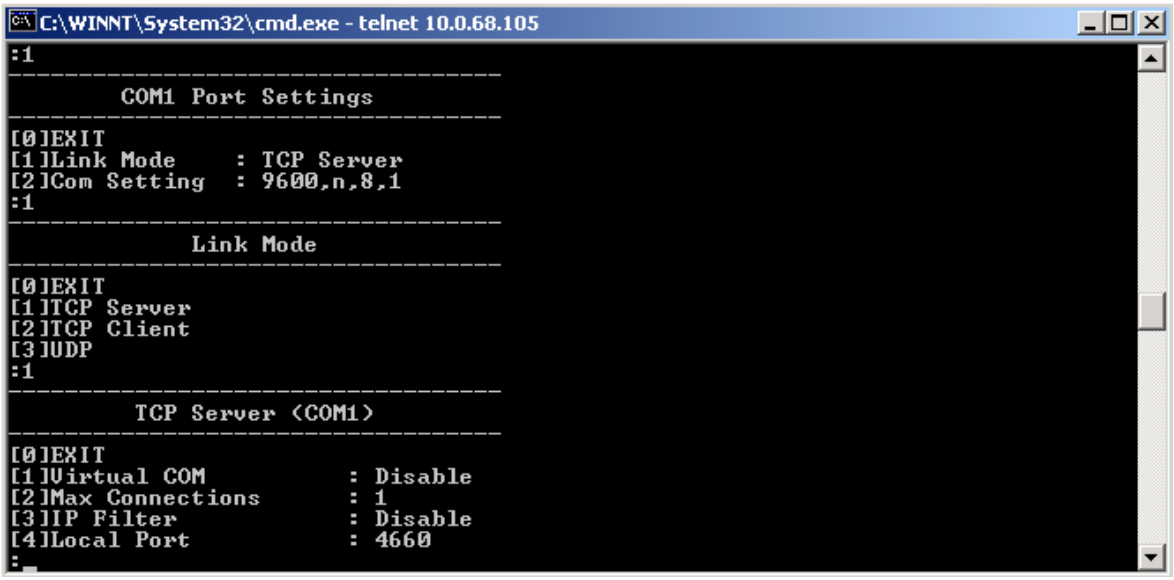


**Figure 3.13 TCP Server for Link mode**

❋ **Note: Enable Virtual COM mode if the remote site PC's "Serial to IP" tool installed.**

### 3.2.8 TCP Client for Link Mode

**Operation: Main→ [3]COM Port Setting→[1-16]Select Port→[1]Link Mode→[2]TCP Client**

On destination IP & port enter desired destination IP and port as a TCP client (For example, another serial server, or PC for data-collection). The Serial Server can support two destination host computers simultaneously.

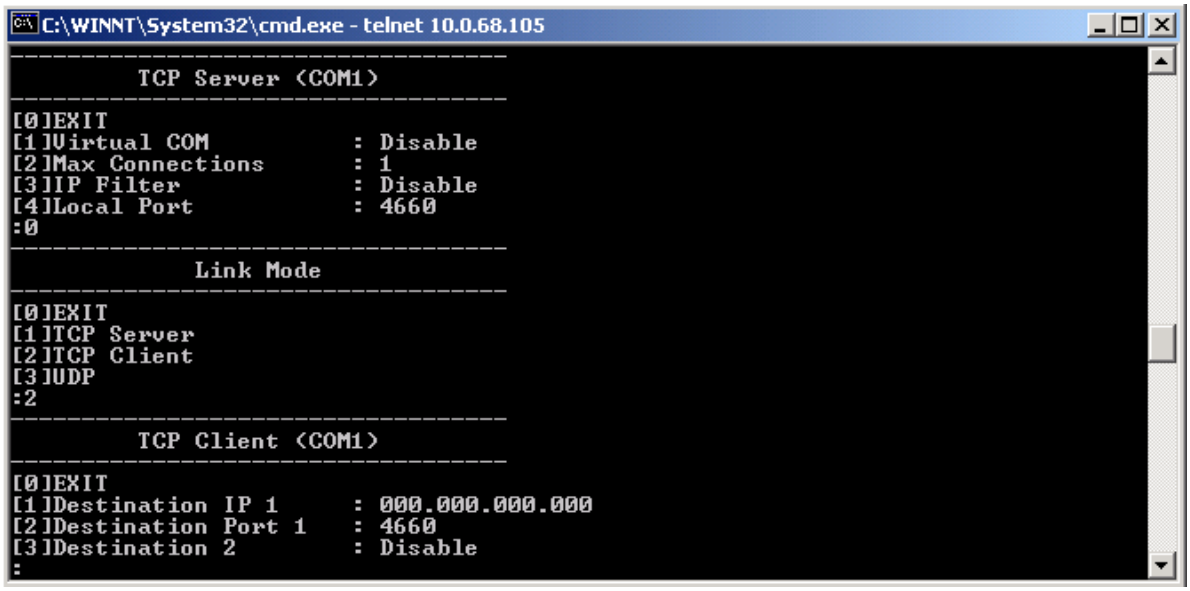


**Figure 3.14 TCP Client for Link mode**

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### 3.2.9 UDP Link Mode

**Operation: Main→ [3]COM Port Setting→[1-16]Select Port→[1]Link Mode→[3]UDP**

Serial Server can be configured in a UDP mode to establish connection using uni-cast or broadcast the data from the serial device to one or multiple host computers. Vice versa is also true. For example, The original RS-422/ RS485 bus is transferred and extended connecting distance by serial servers, The destination IP is assigned by single IP or group IPs, The configuration is limited by the Local Listening Port (For example, on the COM1 of Serial Server listening port is 4660 which receive data sending from the host computer)

Serial Server can support up to 8-group IPs for UDP connection, if users needed.

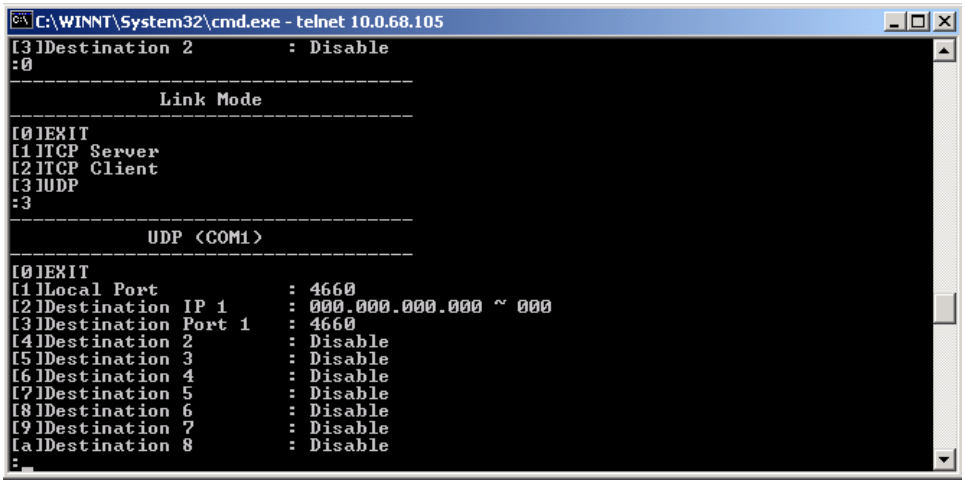


**Figure 3.15 UDP for Link mode**

❋ **Note: UDP mode doesn't support Virtual COM mode yet.**

### 3.2.10 Serial Settings

**Operation: Main→ [3]COM Port Setting→[1-16]Select Port→[2]Com Settings**

❋ **Here one may configure baud rate, parity, data bit, stop bit, flow control, and UART mode as defined by the user.**

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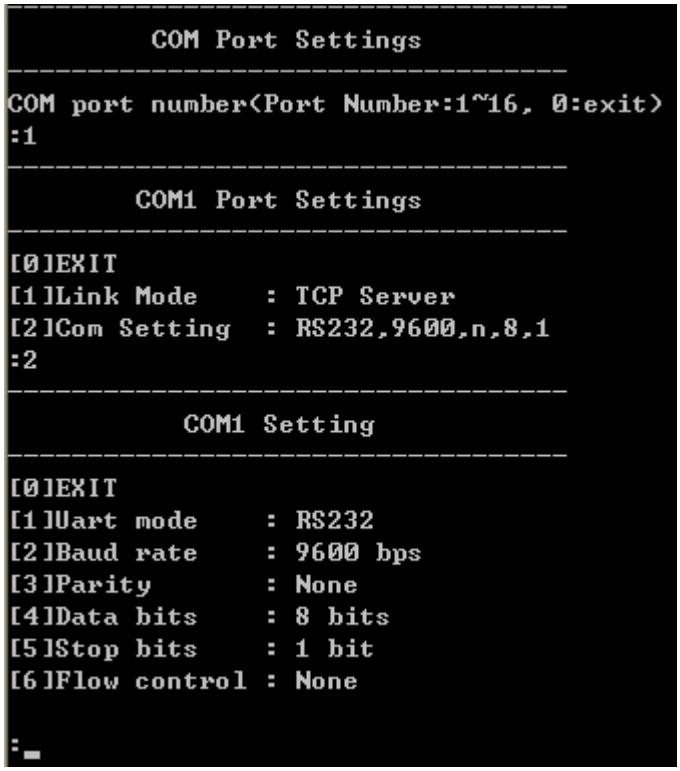


**Figure 3.16 Serial Setting by Telnet**

## 3.2.12 Alert Settings

There are two subsystem settings include E-mail and Alert Event.

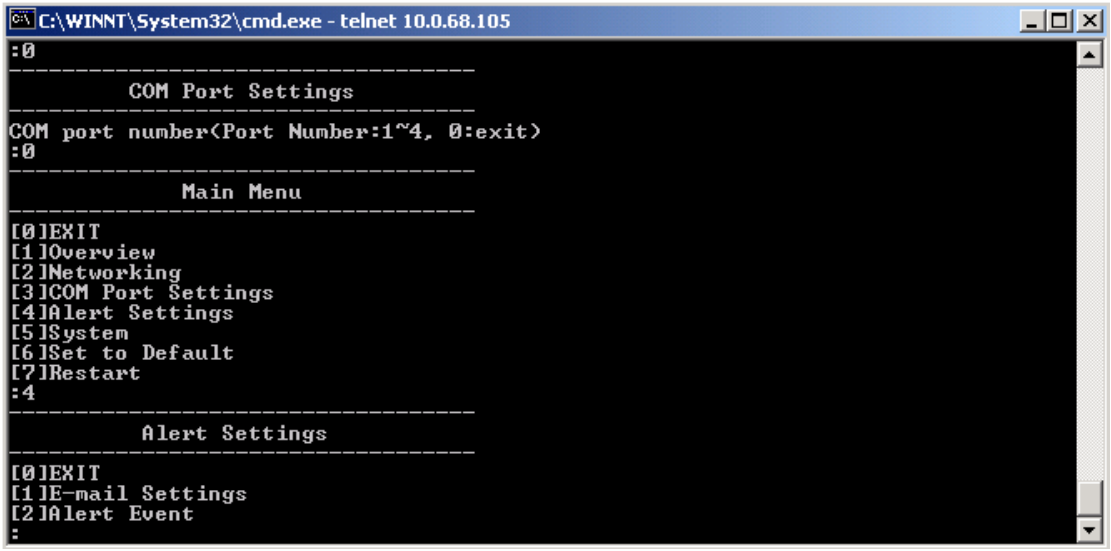


**Figure 3.19 Alert Settings by Telnet**

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## 3.2.13 Configuring E-mail

**Operation: Main→ [4]Alert Settings→[1]E-mail Settings**

One may configure the "***Sender's E-mail address***" that it should have on the SMTP server (Mail Server) where allowed to sent out the email by sender's E-mail address. The SE5404D allow to definite the receiver up to 5. Also the E-mail notification will be sent to the e-mail account their obtained in "Receiver's E-mail address 1", "Receiver's E-mail address 2", "Receiver's E-mail address 3", "Receiver's E-mail address 4" and "Receiver's E-mail address 5".

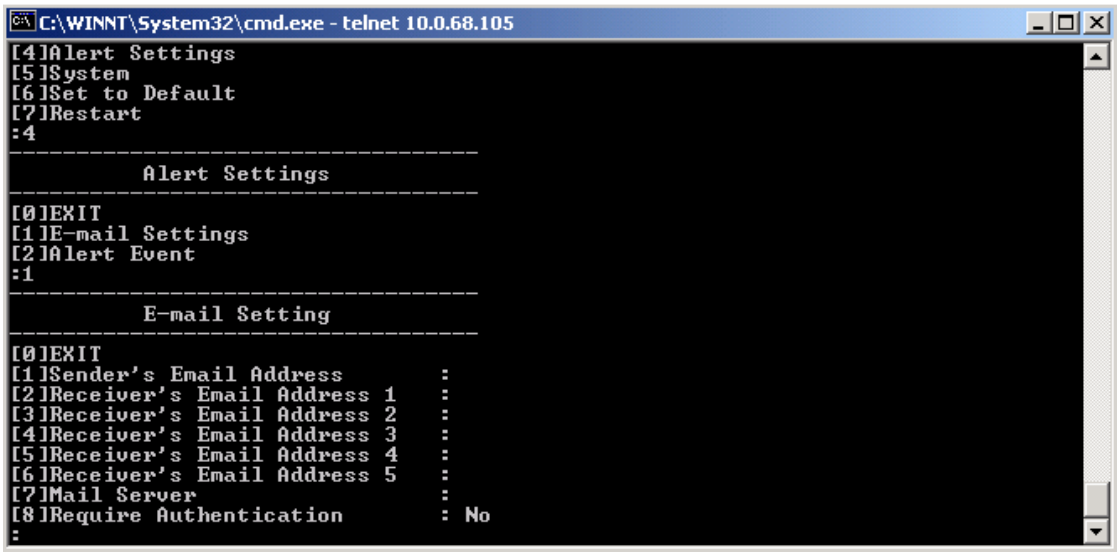


**Figure 3.20 Configuring E-mail by Telnet**

One may configure Mail Server and checking on "***My mail server requests authentication***" field to obtain User name and Password.

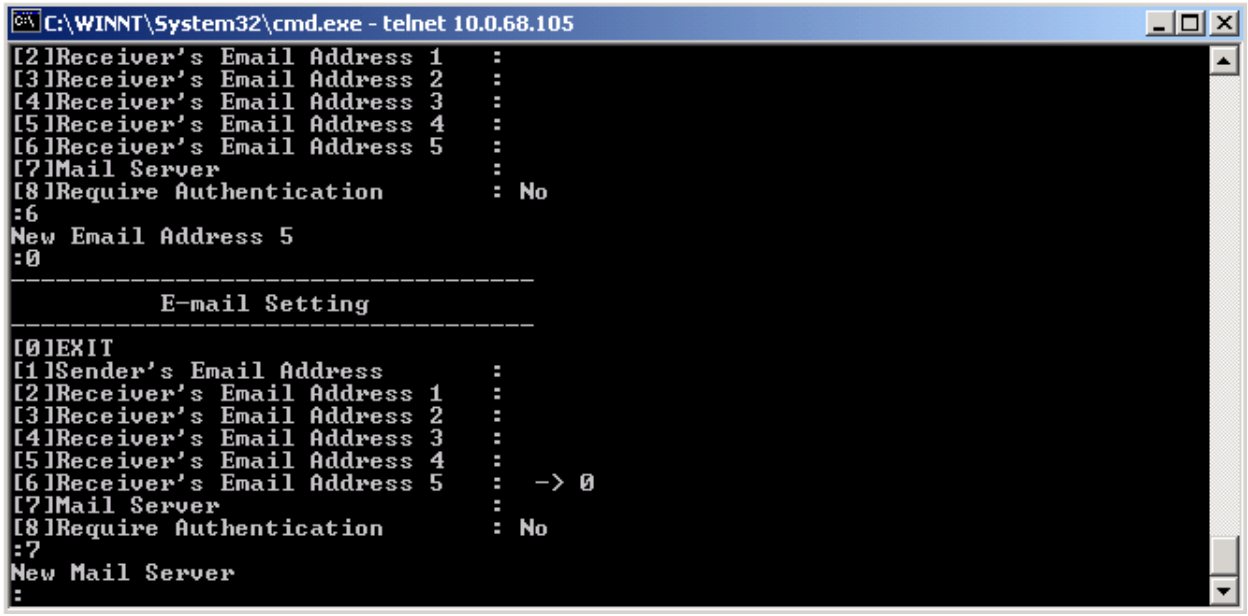


**Figure 3.21 Configuring Mail Server by Telnet**

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### 3.2.14 Configuring Alert Event

**Operation: Main→ [4]Alert Settings→[2]Alert Event**

Choose the Alert event to configure SE5404D Series to send the alert notification by E-Mail or SNMP Trap (See Fig. 3.22).

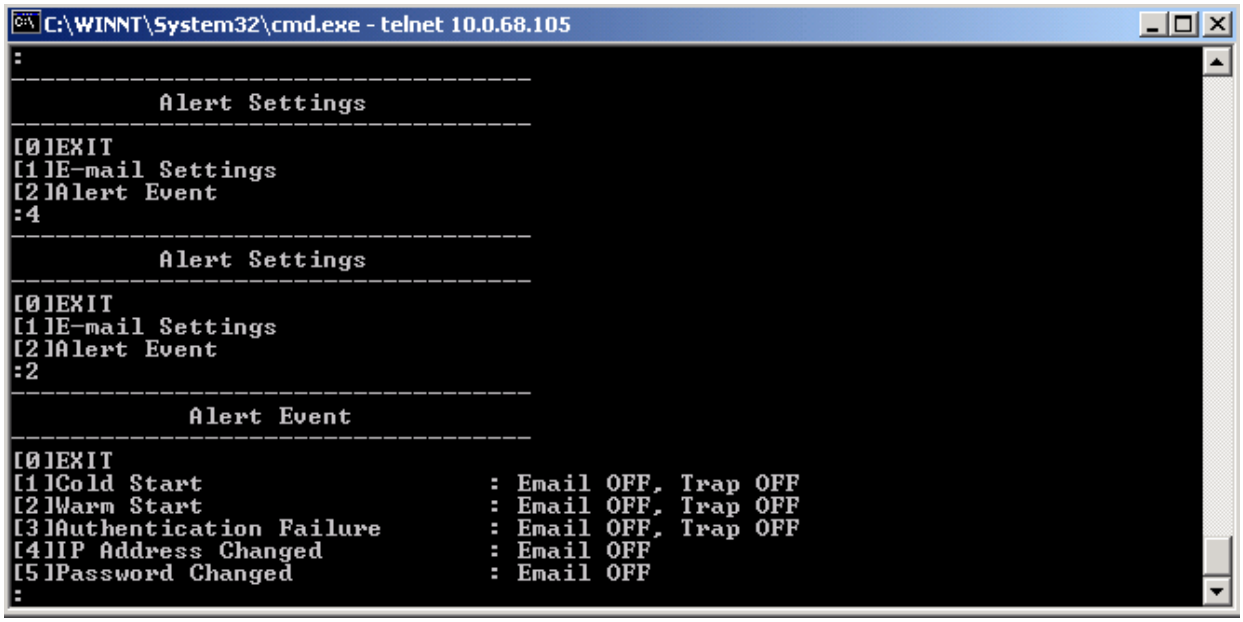


**Figure 3.22 Configuring Alert Event by Telnet**

### 3.2.15 System Configuration

**Operation: Main→ [5]System**

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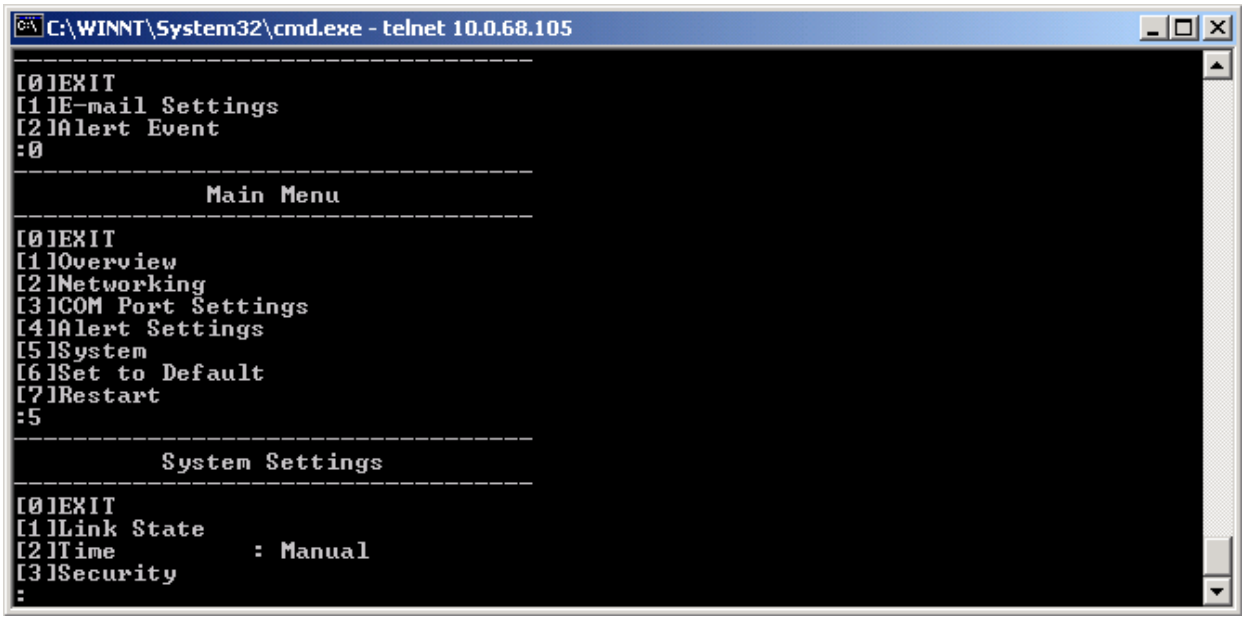


**Figure 3.23 Security settings by Telnet**

## 3.2.16 Link State

**Operation: Main→ [5]System→[1]Link State**

Link State is display information by Link mode (TCP Server, TCP Client and UPD) and status of each connection for all serial port.

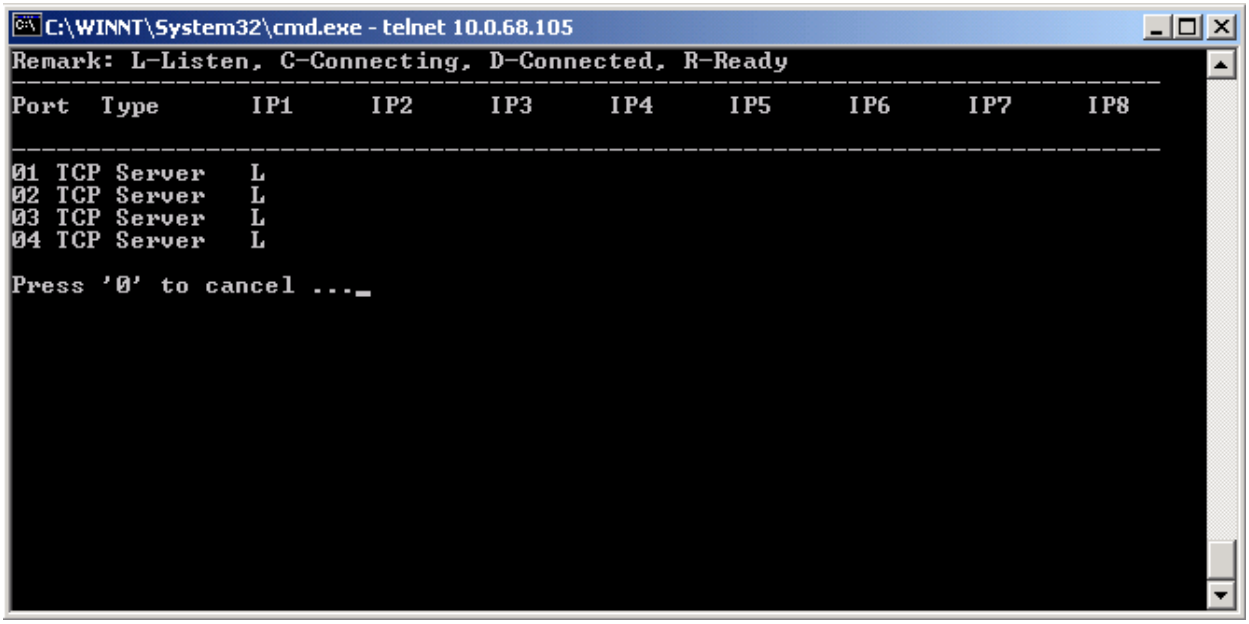
C:\WINNT\System32\cmd.exe - telnet 10.0.68.105
Remark: L-Listen, C-Connecting, D-Connected, R-Ready
Port Type IP1 IP2 IP3 IP4 IP5 IP6 IP7 IP8
01 TCP Server L
02 TCP Server L
03 TCP Server L
04 TCP Server L
Press '0' to cancel ...

**Figure 3.24 Display Link State by Telnet**

## 3.2.17 Time Settings

**Operation: Main→ [5]System→[2]Time**

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One may configure time to Manual Settings or NTP services. The changed will take effect immediately when saved successful.

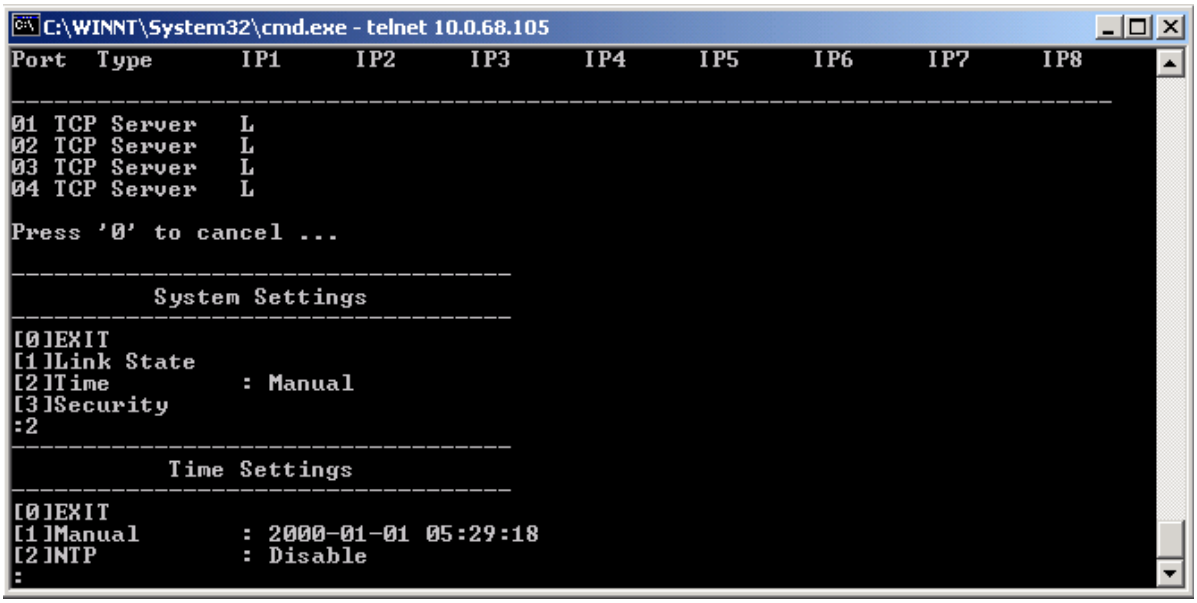


**Figure 3.25 Time settings by Telnet**

## 3.2.18 Security Settings

**Operation: Main→[5]System→[3]Security**

SE5404D serials allow one to change the access methods to protect it against intrusion.

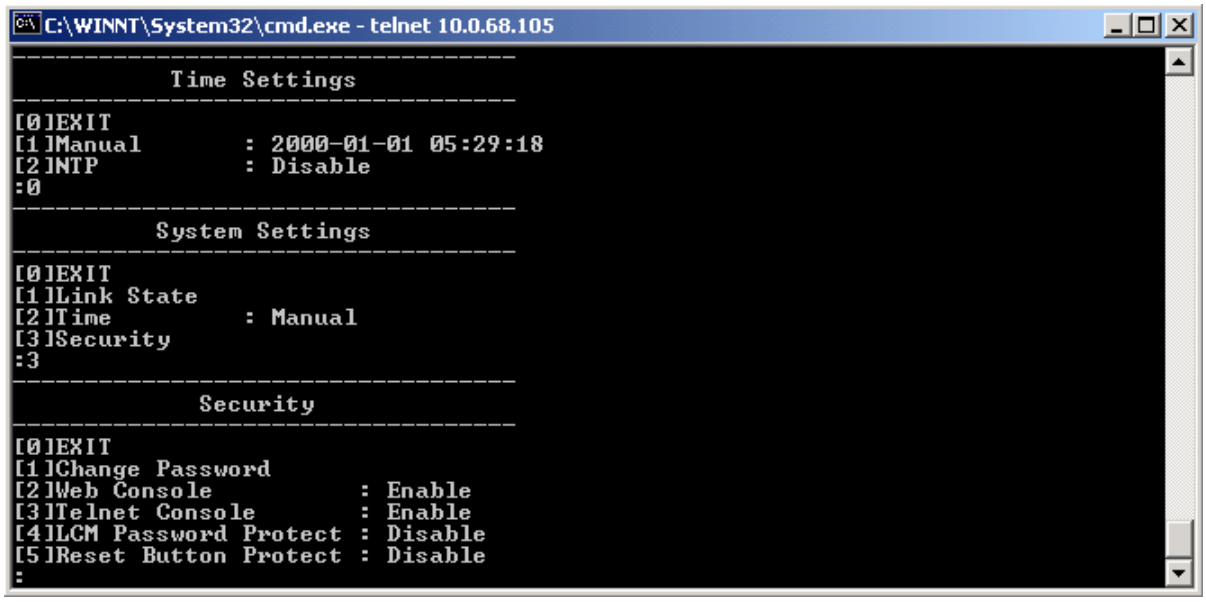


**Figure 3.26 Security Settings by Telnet**

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### 3.2.19 Restoring Factory Default

**Operation: Main→ [6]Set to Default**

Choose this menu to restore Serial Server's settings to Factory Default Settings.

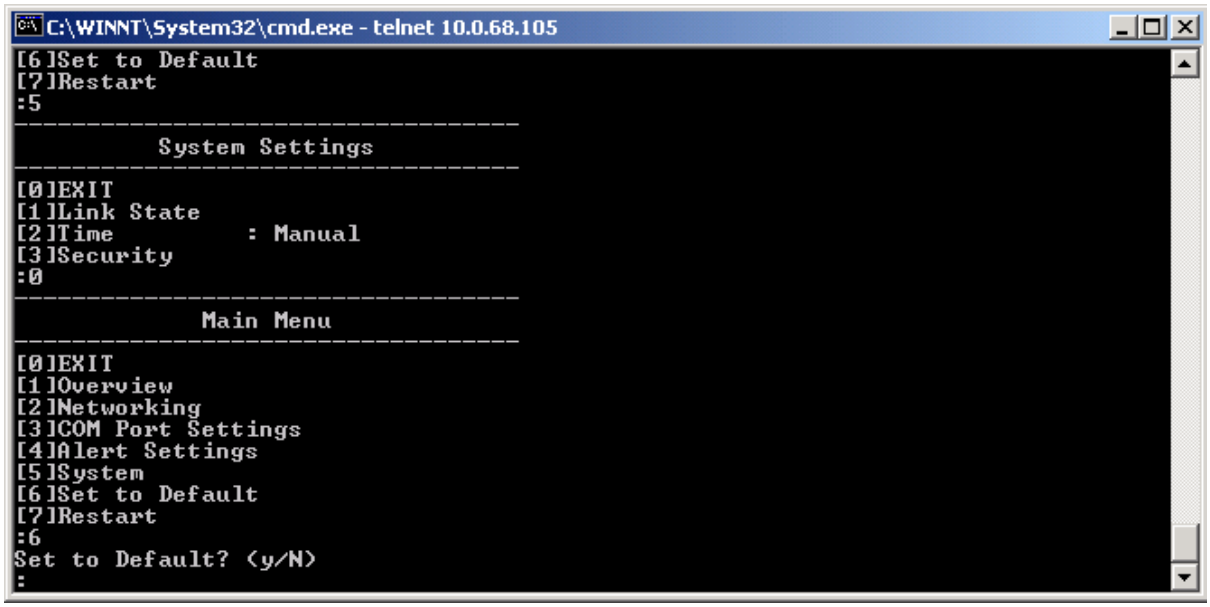


**Figure 3.27 Restore Factory Default by Telnet**

### 3.2.20 Restart System

**Operation: Main→ [7]Restart**

Choose this menu to restart the SE5404D series.

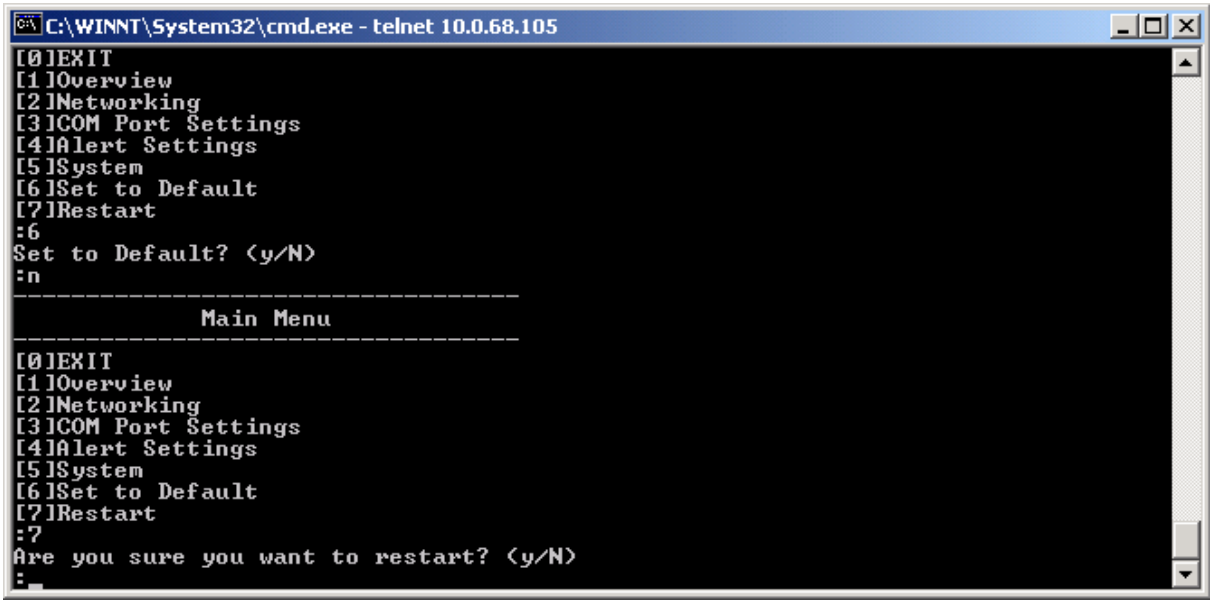


**Figure 3.28 Restart System by Telnet**

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## 3.3 Web Configuration

1. Make sure your PC is located on the same network sub-net as SE5404D
2. Open a web browser, then Enter in the IP address of SE5404D to be configured. Default user name is **admin** and default password is **null (leave it blank)**.
3. SE5404D's **network**, **link mode** and **COM ports settings** can be configured in different web pages.
4. Click "***Save Configuration***" to save settings.
5. Click "***Restart***" button in "***System***" link to make the change effective if necessary.

It is also possible to modify various settings through the web server interface. To do so, please follow the steps below.

### 3.3.1 Login to System

While on the web browser, ex. Microsoft IE or Firefox and so on, enter the IP address of Serial Server on the URL. **Example:** *http://10.0.50.100*

The following authentication screen shall appear. Enter desired **user name** and **password** then click on "**OK**". The default user name is **admin** and password is Null *(Leave it blank)*.

The following overview screen shall appear.

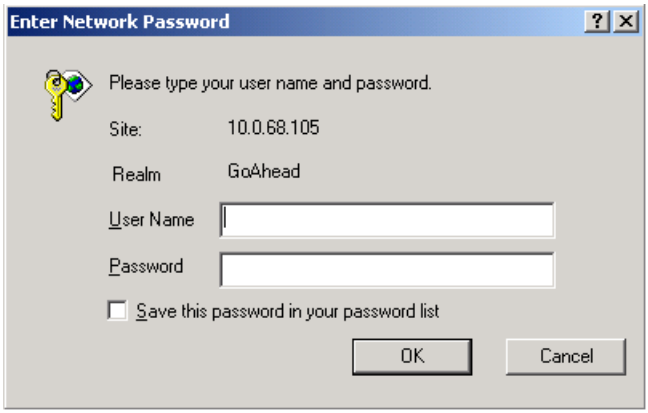


**Figure 3.19 Authorization Request for System Security**

### 3.3.2 General Information

This system overview window gives the general information on Device and Network information (See Fig 3.20)

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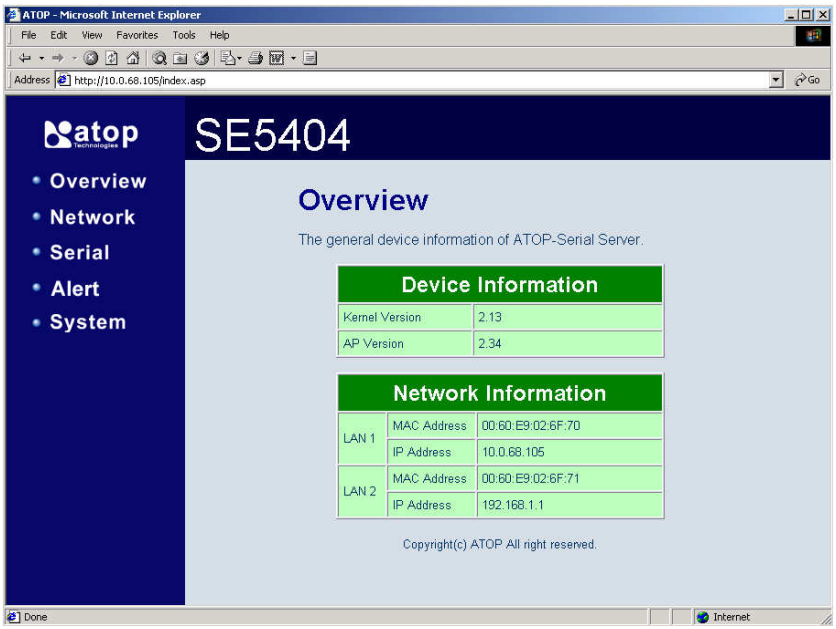


**Figure 3.20 Overview by Web page**

**Device Information**

SE5404D Serial Server's displays system information Kernel version and AP version. The information are read only and attributed from another setting page or system status (See Fig. 3.21)

| Device Information | |
|---|---|
| Kernel Version | 2.13 |
| AP Version | 2.34 |

**Figure 3.21 Device Information by Web page**

**Networking information**

Networking information fields are displayed both 'LAN 1 and LAN 2' s information on overview page. The information provided with networking settings (See Fig. 3.22).

| Network Information | | |
|---|---|---|
| LAN 1 | MAC Address | 00:60:E9:02:6F:70 |
| | IP Address | 10.0.68.105 |
| LAN 2 | MAC Address | 00:60:E9:02:6F:71 |
| | IP Address | 192.168.1.1 |

**Figure 3.22 Network Information by Web page**

## 3.3.3 Network Configuration

There are four items allowed to change on Network page in which include LAN 1, LAN 2, DNS and SNMP Information.

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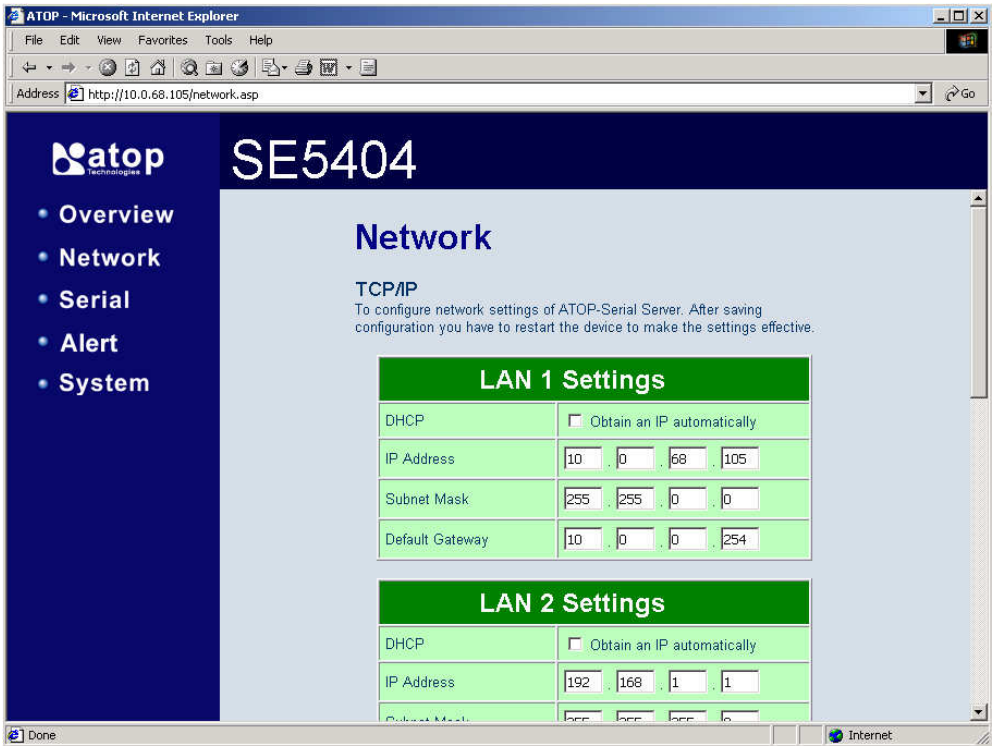


**Figure 3.23 Network Configuration by Web page**

### 3.3.4 LAN 1 Settings

Click on the "***Network***" link and the following screen shall appear. Fill in LAN 1 IP information on LAN 1 TCP/IP field. Alternatively, one may activate DHCP client function by checking on "***Obtain an IP automatically***".

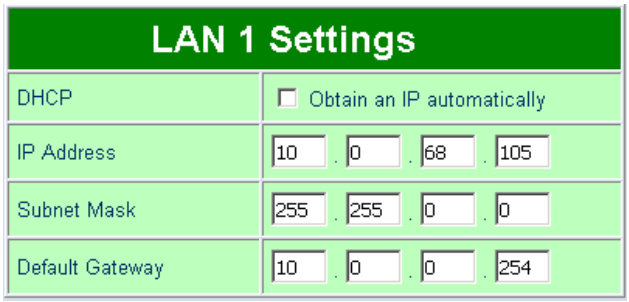


**Figure 3.24 LAN 1 Setting by Web page**

### 3.3.5 LAN 2 Settings

Click on the ***"Network"*** link and the following screen shall appear. Fill in LAN 2 IP information on LAN 2 settings fields. Alternatively, one may activate DHCP client function by checking on "***Obtain an IP***

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***automatically***" field to obtain IP address, gateway and subnet mask from DHCP server automatically.

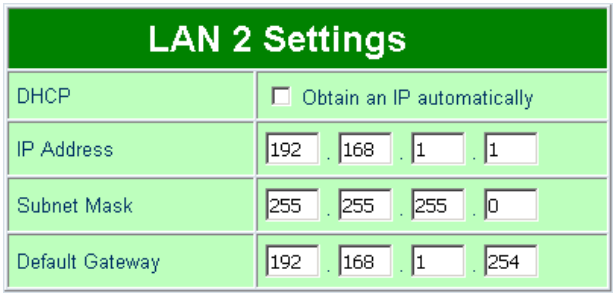


**Figure 3.25 LAN 2 Setting by Web page**

### 3.3.6 DNS Settings

Click on the ***"Network"*** link and the following screen shall appear. Fill in DNS information. Alternatively, you can set the Serial Server to receive DNS server IP address from DHCP server automatically by enabling the DHCP of "***LAN 1 Settings***".

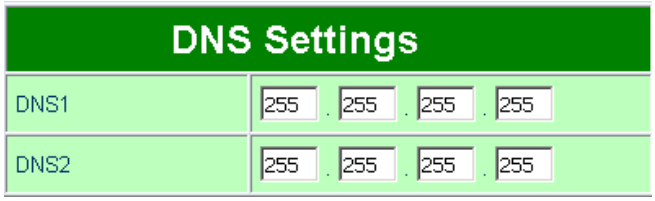


**Figure 3.26 DNS Setting by Web page**

### 3.3.7 SNMP Settings

Click on the ***"Network"*** link and the following screen shall appear. Fill in SNMP information on third field. Alternatively, to settings SysName, SysLocation, SysContact fields and one may configure by Checking on "***Enable SNMP***" field. Fill in Read Community, Write Community, SNMP Trap Server information on SNMP Settings fields. The changes of SNMP Settings will take effect immediately when saved successful.

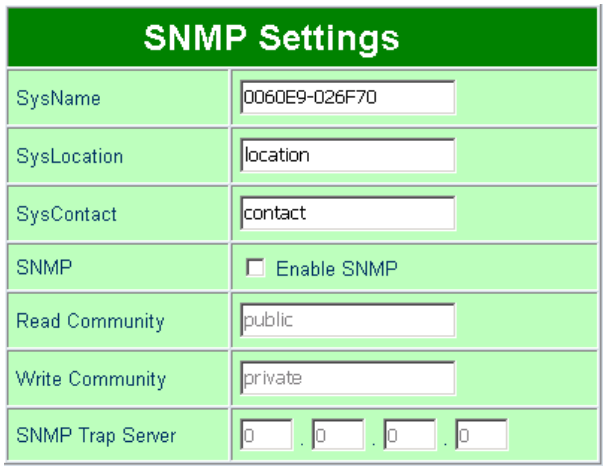


**Figure 3.27 SNMP Setting by Web page**

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## 3.4 COM Port Configuration

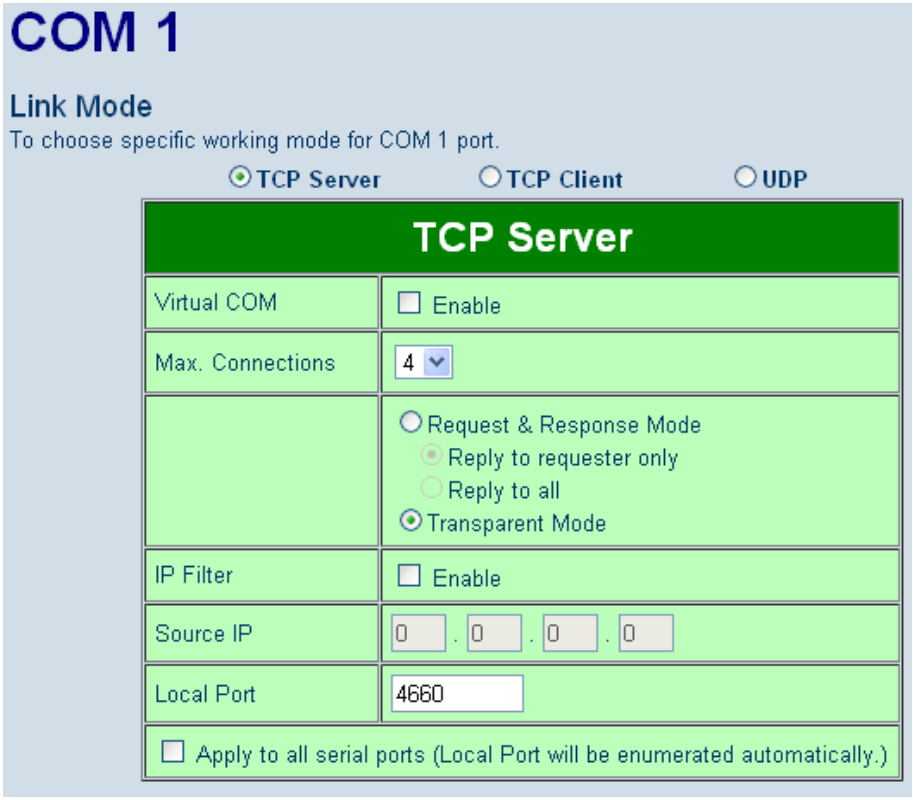


**Figure 3.28 COM Port Configuration by Web page**

### 3.4.1 TCP Server for Link Mode

TCP Server mode is the default Link mode of serial settings, and it can wait for connecting requirement from remote host PC which "serial-to IP" tool installed or counter-pair SE5404D Serial servers in tunneling mode. One shall configure listening port to allow establishing connection; Default port numbers of Serial Server are 4660 – 4667/4675.

If you wish to setup two SE5404Ds in tunneling mode, one SE5404D should run as a TCP Server and the other should run as a TCP Client. Server's Local Port should match Client's Destination Port. Client's Destination IP should match Server's IP. Detailed steps are described below.

1. Prepare two SE5404Ds (A and B). Note that you can treat each COM port as an independent device.
2. SE5404D A= 10.10.50.100. SE5404D B = 10.10.50.101 (You can use different IPs, but both SE5404Ds need to be in the same subnet).
3. When connecting SE5404D to the instrument or to the PC over RS-232, please use a cross-over cable.
4. Enable "Virtual COM" on the WebUI for both SE5404Ds (First option in COM settings).
5. Set SE5404D A COM1 to TCP Server mode. Set SE5404D B COM1 to TCP Client mode IP and port equal to SE5404D A COM1's settings (Default Destination IP=10.10.50.100, Default Destination Port = 4660).

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6. (optional) Repeat for remaining COMs: Set SE5404D A COM2 to TCP Server mode. Set SE5404D B COM2 to TCP Client mode IP and port equal to SE5404D A COM2's settings (Default Destination IP=10.10.50.100, Default Destination Port = 4661).

**Max Connections (default=1):**

This option is used if you need to receive data from different hosts simultaneously. When set to 1, only a single host may open the TCP connection to the serial port. When set to 2 or greater, up to the specified number of hosts may open this port at the same time.

**ATTENTION**

When **Max. Connections** is greater than 1, the Serial server device will apply multi connection application (i.e., 4 hosts are allowed access to the port at the same time). When using a multi connection application, all hosts connected to the port must use identical serial settings. If one of the hosts opens the COM port with different serial settings, data will not be transmitted properly

**Request and response Mode**

This option determines how the port will proceed if multiple hosts are connected and one or more of the hosts stop responding when the port is transmitting data. If you select **Reply to requester only**, the port will keep other hosts' request data in the buffer and continue data transmission to the request host only. If you select **Reply to all**, the port will transmit reply data to all connected hosts**.**

**Transparent Mode**

The port will allow the other hosts and continue data transmission to all hosts. This mode does not take "Response Interval Timeout" into consideration.

IP filtering function is a simple ACL (Access Control List) disabled by setting FILTER_IP to "0.0.0.0".

One may configure one or group IP for source IP. If IP filter is enabled, only source IP assigned is connected to Serial Server.

If you check "***Apply to all serial ports***", it will configure all of the serial ports.

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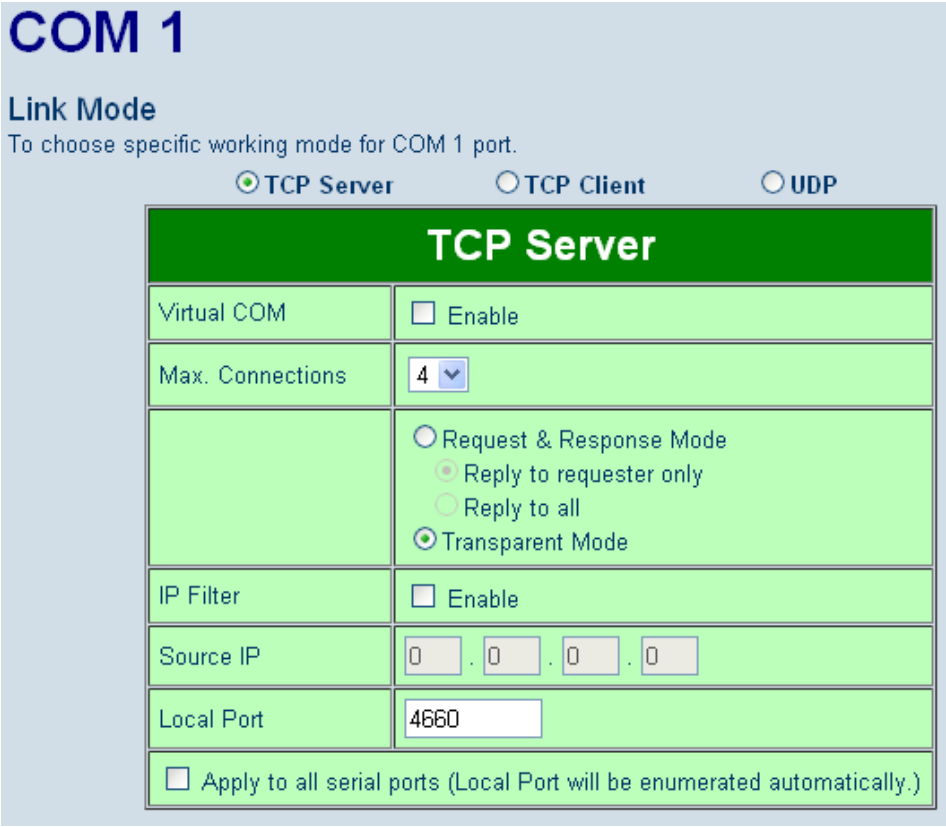


**Figure 3.29 TCP Server in Link mode**

❋ **Note: Enable Virtual COM mode if the remote site PC's "Serial to IP" tool installed**

### 3.4.2 TCP Client for Link Mode

One may enter destination IP & port (default: 4660) to establish connection of counter-pair (remote) host (For example, another serial server, or PC for data-collection). Serial Server can support two destination hosts simultaneously.

If you check "***Apply to all serial ports***", it will configure all of the serial ports.

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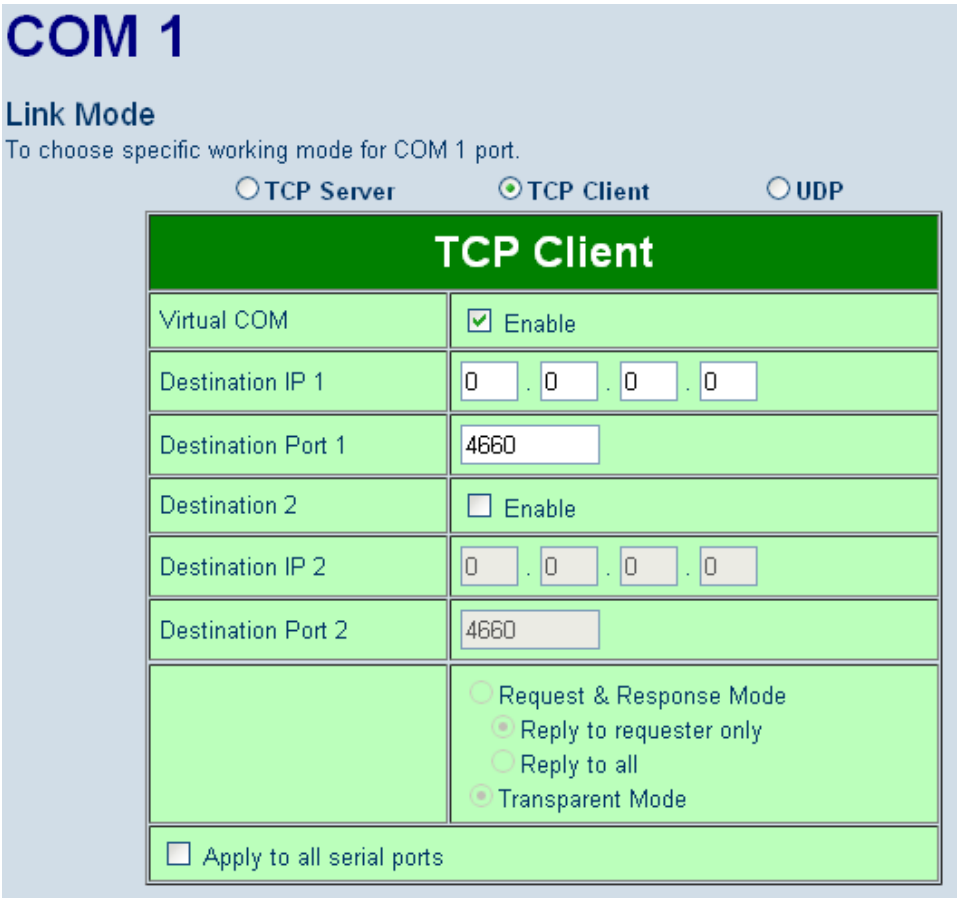


**Figure 3.30 TCP Client in Link mode**

### 3.4.3 UDP for Link Mode

UDP is a fast but non-guaranteed datagram delivery protocol. Serial Server can be configured in a UDP mode on a TCP/IP Network to establish a connection, using uni-cast or broadcast data to and from a serial device to one or multiple host computer,.

Serial Server can be configured in a UDP mode to establish connection using uni-cast or broadcast data from the serial device to one or multiple host computers. Vice versa is also true. For example, The original RS-422/ RS485 bus is transferred and extended connecting distance by serial servers, The destination IP is assigned by single IP or group IPs, The configuration is limited by the Local Listening Port (For example, on Serial Server listening port is 4660 which receive data sending from the host computers) Serial Server can support up to 8-group IP for UDP connection, if users needed.

If you check "***Apply to all serial ports***", it will configure all of the serial ports.

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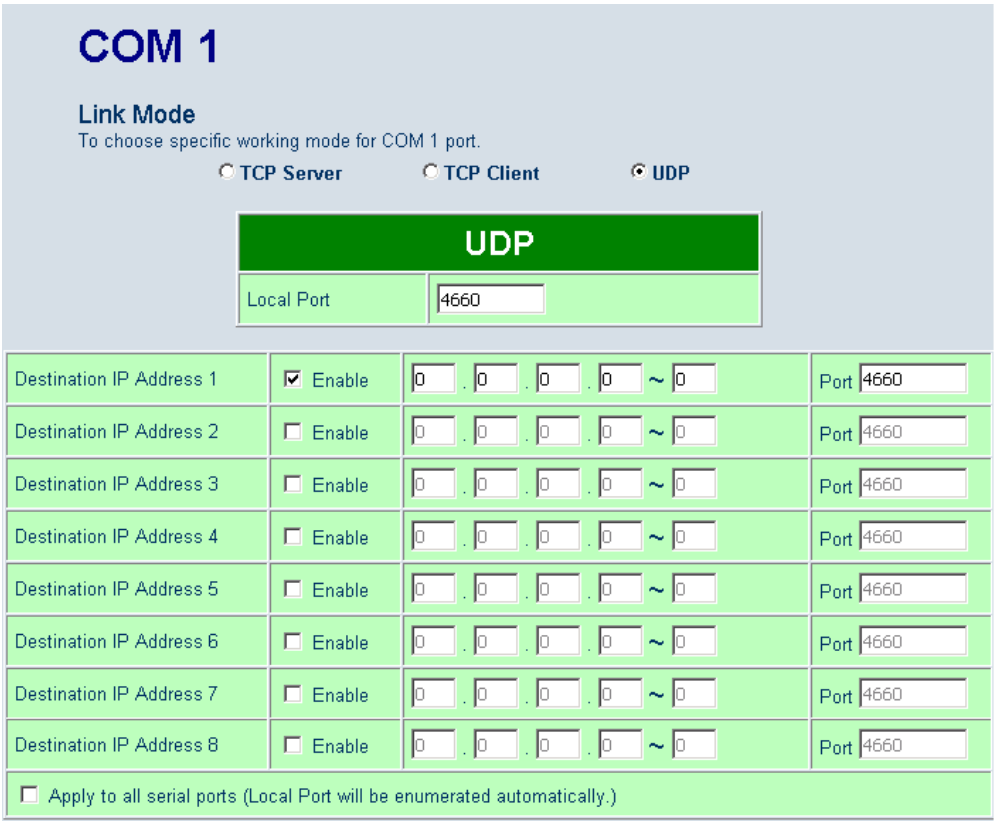


**Figure 3.31 UDP in Link mode**

❋ **Note: UDP mode doesn't support Virtual COM mode yet**

### 3.4.5 Serial Settings

This filed can configure serial parameters for Serial Server. Here one may configure Serial parameters, include UART Mode, baud rate, parity, data bit and type of flow control you wanted

- **Configuring UART Mode:** RS-232 or RS-485 or RS-422
- **Baud rate:** 300 / 600 / 1200 / 2400 / 4800 / 9600 / 19200 / 38400 / 57600 / 115200 / 230400 / 460800 / 500000 / 576000 / 921600
- **Parity:** None or Odd or Even or Mark or Space
- Data bits: 7 or 8
- Stop bits: 1 or 2
- **Flow control:** None or Xon/Xoff or Hardware (RTS/CTS)

❋ **If you check "*Apply to all serial ports*", it will configure all of the serial ports.**

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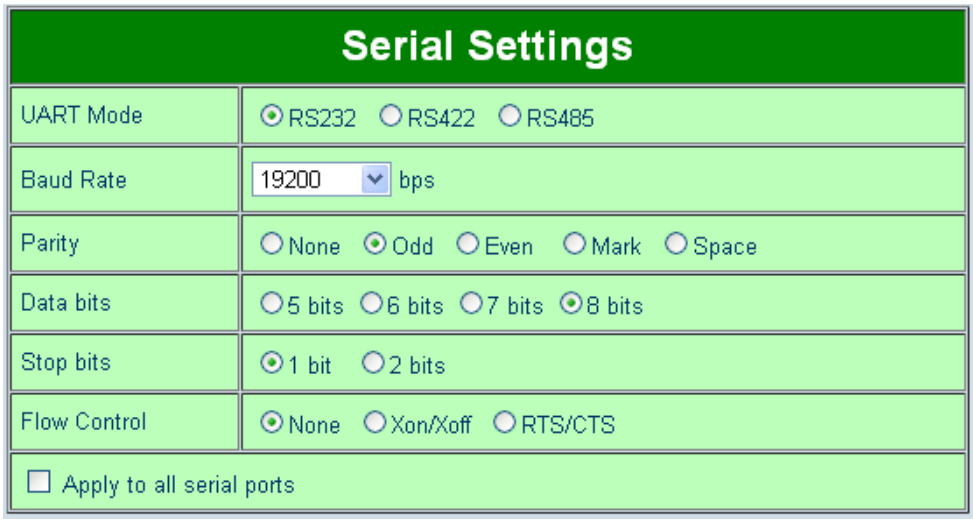


**Figure 3.32-1 Serial Settings by Web page**

## 3.4.6 Advanced Settings

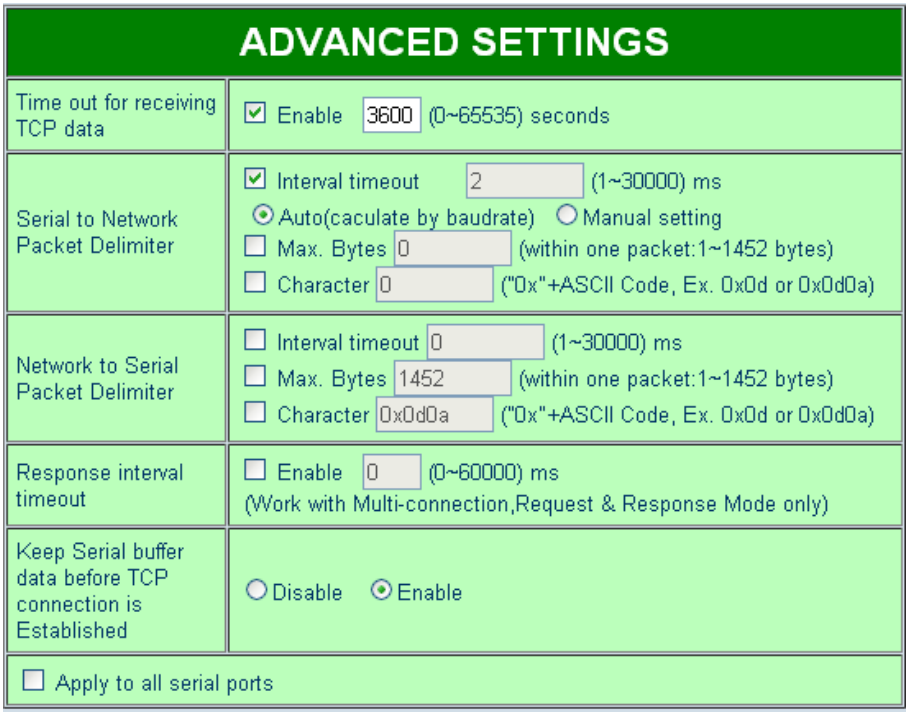
ADVANCED SETTINGS
Time out for receiving TCP data
Enable 3600 (0~65535) seconds
Serial to Network Packet Delimiter
Interval timeout 2 (1~30000) ms
Auto(caculate by baudrate) Manual setting
Max. Bytes 0 (within one packet:1~1452 bytes)
Character 0 ("0x"+ASCII Code, Ex. 0x0d or 0x0d0a)
Network to Serial Packet Delimiter
Interval timeout 0 (1~30000) ms
Max. Bytes 1452 (within one packet:1~1452 bytes)
Character 0x0d0a ("0x"+ASCII Code, Ex. 0x0d or 0x0d0a)
Response interval timeout
Enable 0 (0~60000) ms
(Work with Multi-connection,Request & Response Mode only)
Keep Serial buffer data before TCP connection is Established
Disable Enable
Apply to all serial ports

**Figure 3.32-1 Advanced Settings by Web page**

**Time out for receiving TCP data (Default: Disabled):** This field specifies how long the serial device server will wait for a response to “keep alive” packets before closing the TCP connection. The serial device server checks connection status by sending periodic “keep alive” packets. If the remote host does not respond to the packet within the time specified in this field, the serial device server will force the existing TCP connection to close. If this setting is set to 0, the TCP connection will remain open even if there is no response to the “keep alive” packets.

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## Serial to Network Packet Delimiter

Packet delimiter is a way of packing data in a serial communication. It is designed to keep packets in track. Serial device server provides three patterns in parameter setting: (1) **packet delimiter by** (1) **Interval timeout,** (2) **Max Byte** and (3) **Character pattern**.

1. **By Time** – The device will transmit the data when set time interval has reached and no more data comes in.
2. **By Max Bytes** – The device will transmit the data when the data queue has reached the set size.
3. **By Character** - The device will transmit the data when it sees the set character.

If one or more of the delimiters are selected, data would be transmitted when any of the conditions are met.

### ATTENTION

**Packet delimiter by Interval timeout,**

This parameter defines how large a gap in serial communication the serial device server will allow before packing the serial data in its internal buffer for network transmission.

The optional “Internal timeout” transmit time depends on your application, but it must be at least larger than one character interval within the specified baud rate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and no parity. In this case, the total number of bits needed to send a character is 10 bits, and the time required to transfer one character is (10 (bits) / 1200 (bits/s)) × 1000 (ms/s) = 8.3 ms.

Therefore, you should set the “Interval timeout” to be larger than 8.3 ms, so in this case, it must be greater than or equal to 10 ms. If it is necessary to send a series of characters in the same packet, the serial device will need to send that series of characters within the specified transmit time, and the total length of data must be less than or equal to the serial device server internal UART buffer size (4K per port).

## Network to Serial Packet Delimiter

Network to Serial Packet Delimiter is used less often compared to Serial to Network Delimiter because Ethernet has better speeds. Packet delimiter is a way of packing data in a serial communication. It is designed to keep packets in track. Serial device server provides three patterns in parameter setting: (1) **packet delimiter by** (1) **Interval timeout,** (2) **Max Byte** and (3) **Character pattern**.

1. **By Time** – The device will transmit the data when set time interval has reached and no more data comes in.
2. **By Max Bytes** – The device will transmit the data when the data queue has reached the set size.
3. **By Character** - The device will transmit the data when it sees the set character

If one or more of the delimiters are selected, data would be transmitted when any of the conditions are met.

**Response interval timeout** (Default: 1000ms):

This option only work in Request & Response Mode. When TCP data is received (request) and passed to Serial side, the device will wait for the set time before transferring another TCP data if the Serial side did not receive any data (response).

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**Keep serial buffer data before TCP connection is Established** (Default: Disable):

If “Enable” is selected, the device will store received data in buffer and sent them out when connection is establish. Otherwise, data will be discarded when “Disable” is selected.

## 3.4.7 Alert Settings

There are two subsystem settings include E-mail and Alert Event.

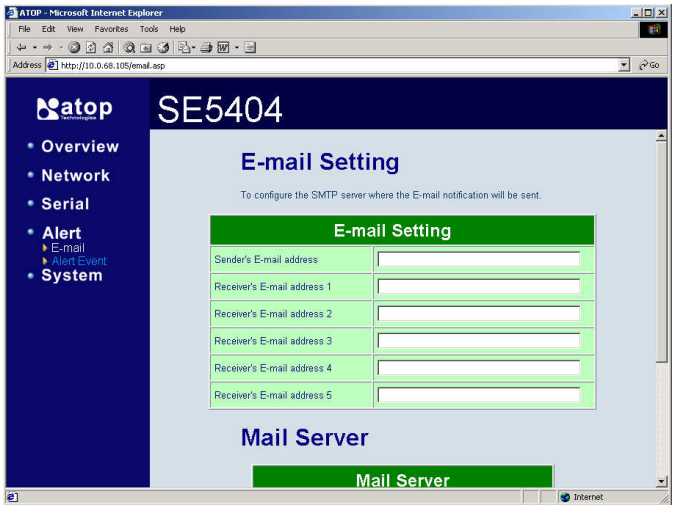


**Figure 3.33 Alert settings by Web page**

## 3.4.8 Configuring E-mail

**Operation: Alert→E-mail**

Click on the “***E-mail***” link and the following screen shall appear

One may configure the “***Sender’s E-mail address***” that it should have on the SMTP server (Mail Server) where allowed to sent out the email by sender’s E-mail address. The SE5404D allow to definite the receiver up to 5. Also the E-mail notification will be sent to the e-mail account their obtained in “Receiver’s E-mail address 1”, “Receiver’s E-mail address 2”, “Receiver’s E-mail address 3”, “Receiver’s E-mail address 4” and “Receiver’s E-mail address 5”.

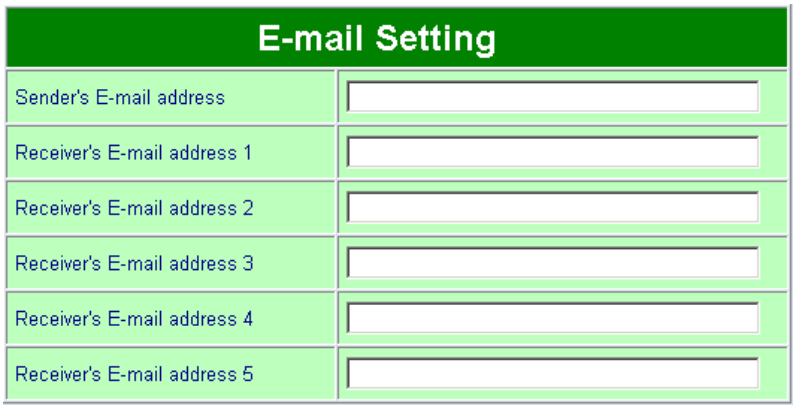


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**Figure 3.34 Configuring E-mail by Web page**

One may configure Mail Server and checking on "***My mail server requests authentication***" field to obtain User name and Password.

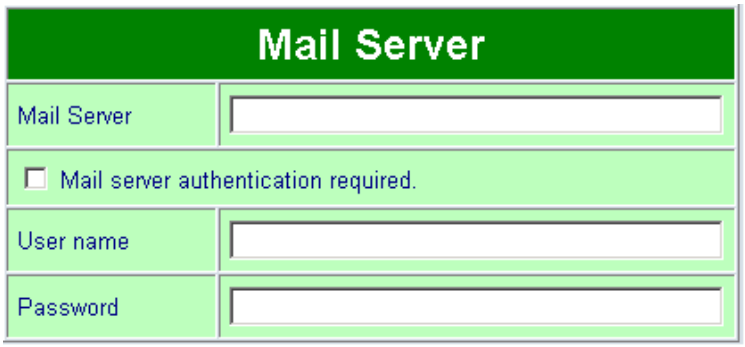


**Figure 3.35 Configuring Mail Server by Web page**

## 3.4.9 Configuring Alert Event

**Operation: Alert→Alert Event**

Click on the "***Alert Event***" link and the following screen shall appear

Choose the Alert event to configure SE5404D Series to send the alert notification by E-Mail or SNMP Trap (See Fig 3.36).

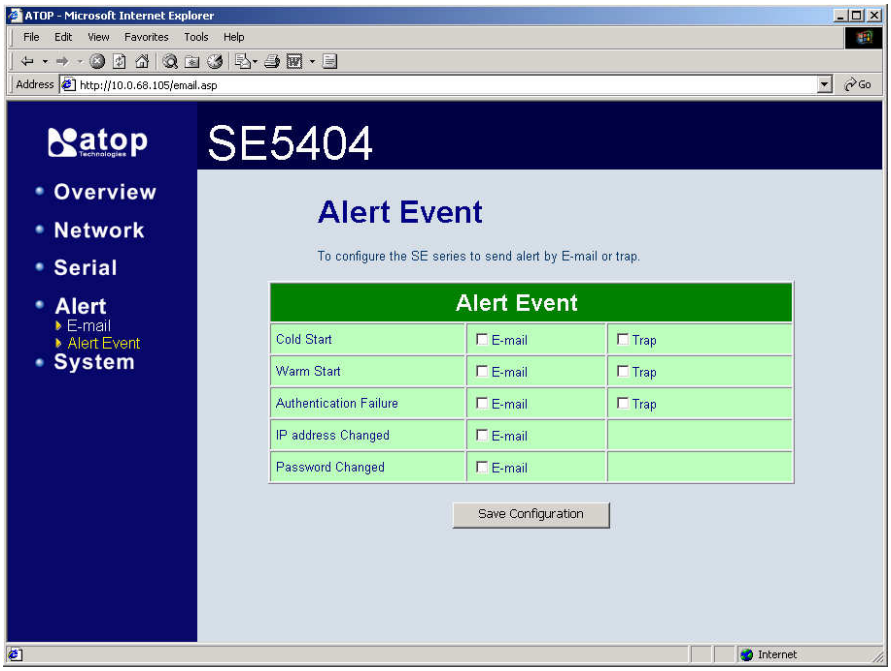


**Figure 3.36 Configuring Alert Event by Web page**

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## 3.5 System Configuration

There are six subsystem settings for system configuration including Link State, Time, Security, Set to Default and Restart.

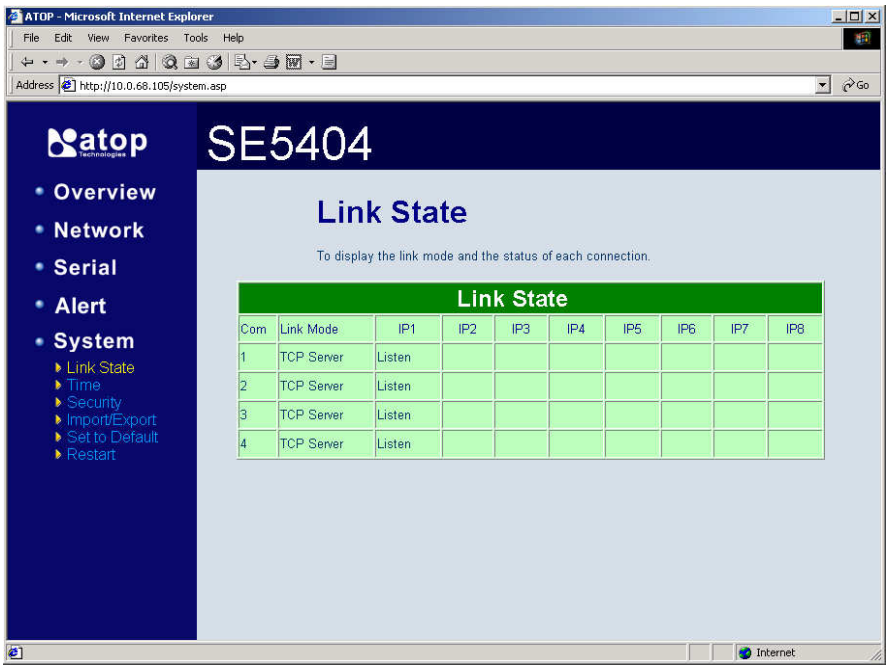


**Figure 3.37 System Configuration by Web page**

### 3.5.1 Link State information

**Operation: System→Link State**

Link State is display information by Link mode (TCP Server, TCP Client and UPD) and status of each connection for all serial port.

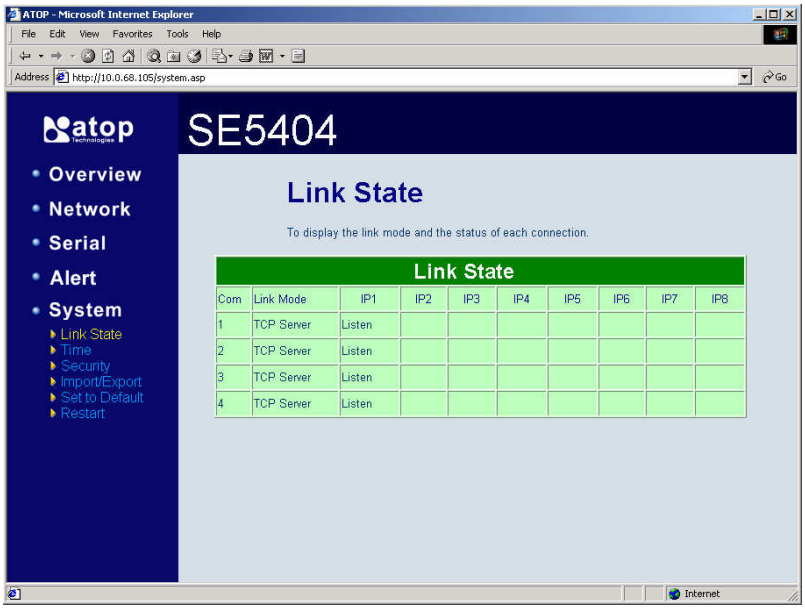


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**Figure 3.38 Link State Information by Web page**

## 3.5.2 Time Settings

### Operation: System→Time

One may configure "***NTP Server***" to obtain Network time automatically or Set it manually by fill in "***Set Date and Time manually***" field. The changed will take effect immediately when saved successful.

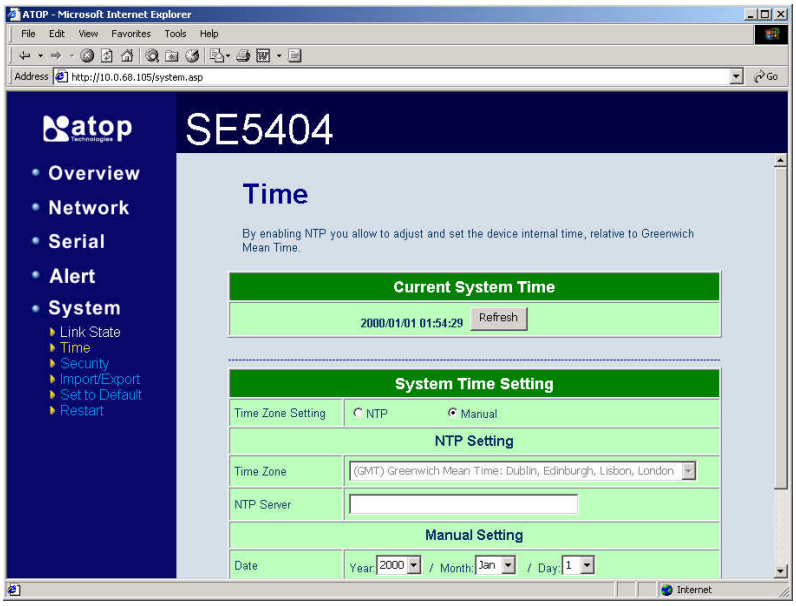


**Figure 3.39 Time Settings by web page**

## 3.5.3 Security Configuration

### Operation: System→Security

Click on the "***Security***" link and the following screen shall appear

**Figure 3.40 Security Configuration by Web page.**

Enter the old password on "***Old Password***" field; enter the new password on "***New Password***" and the "***Verified Password***" fields, and then click on "***Save Configuration***" to update the password.

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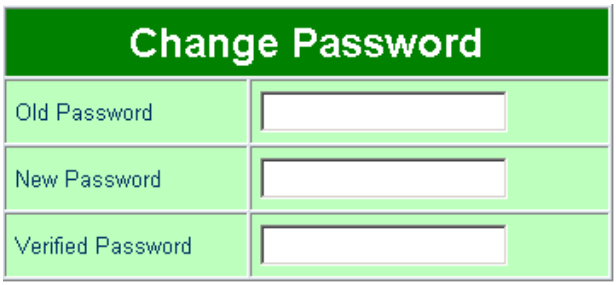


**Figure 3.41 Change password by Web page**

❋ **Note: One may press the reset key on product to reset password to the default value**

SE5404D serials allow one to change the access methods to protect it against intrusion.

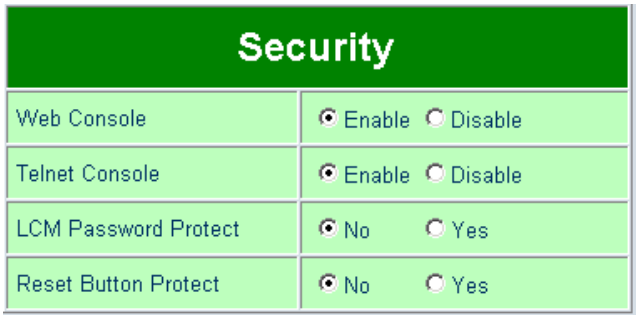


**Figure 3.42 Security Configuration by Web page.**

## 3.5.4 Restore Factory Default

**Operation: System→ Set to Default**

One may click on "***set to default and restart***" button to restore Serial Server's settings to Factory Default Settings.

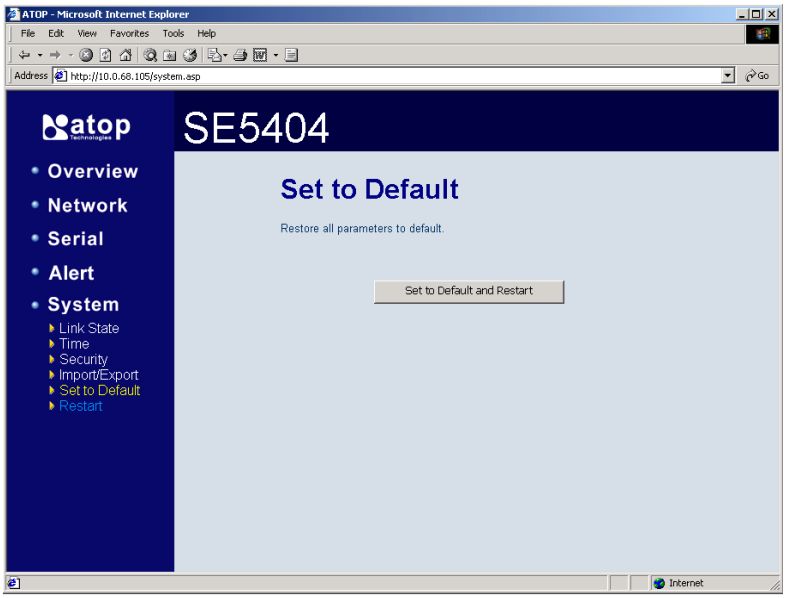


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**Figure 3.43 Restore Factory Default by Web page**

## 3.5.5 Restart System

**Operation: System→ Restart**

One may press "***Restart***" button to restart the SE5404D series. The web page will be refreshing after it reboot.

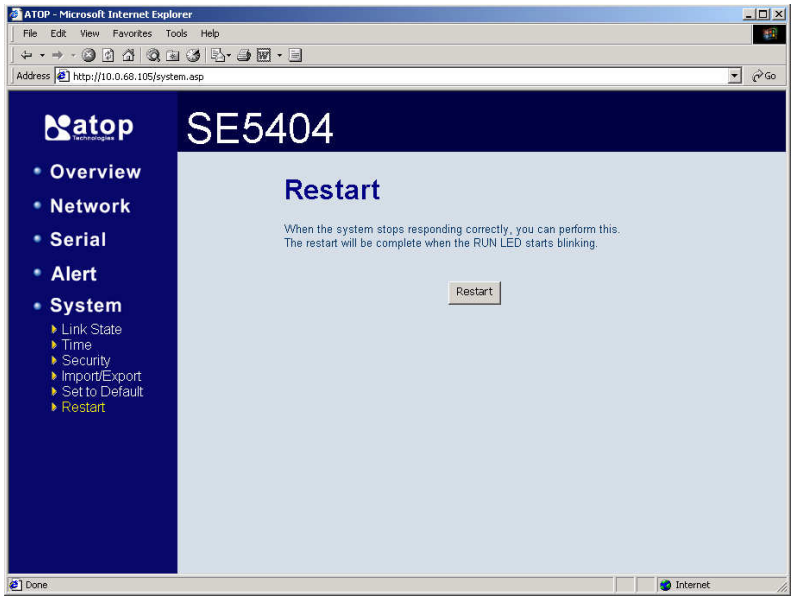


**Figure 3.44 Restart System by Web page**

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# 4. Using Virtual COM

Virtual COM driver mode for windows converts COM data to LAN data to control the COM port on a SE5404D via the LAN. By creating virtual COM ports on the PC, the Virtual COM driver redirects the communications from the virtual COM ports to an IP address and port number on a SE5404D that connects the serial line device to the network. The following figure is Virtual COM connection diagram. (ref Figure 4.1)

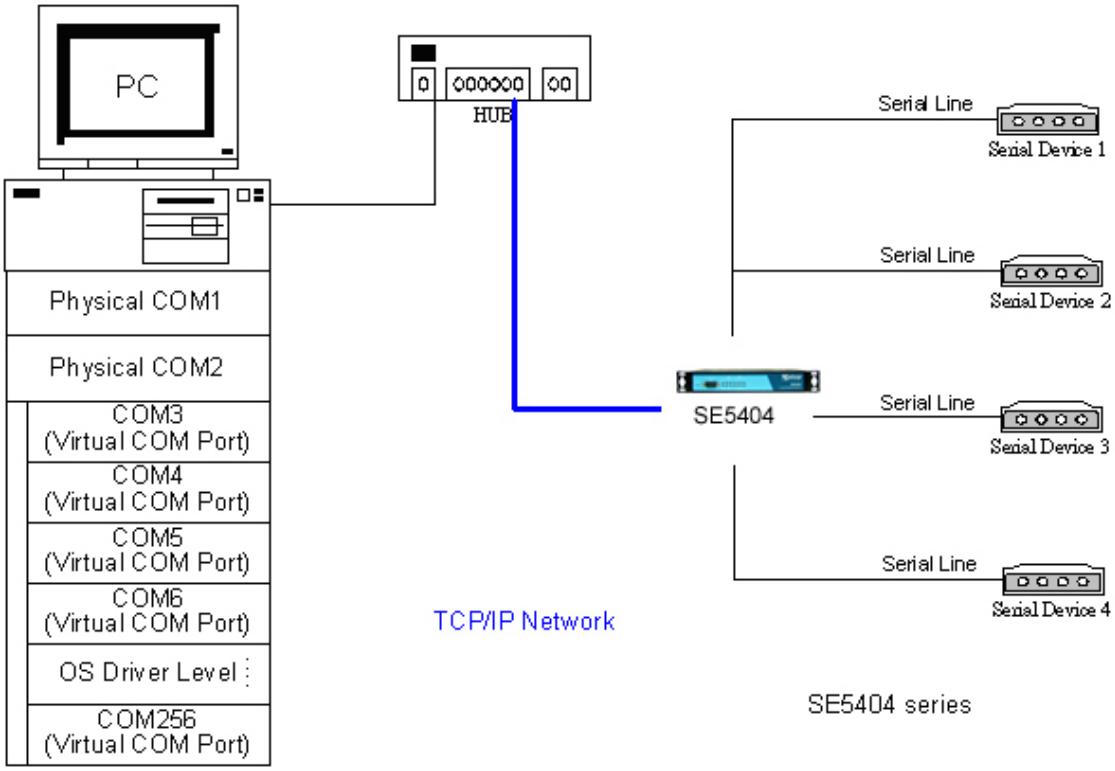


Figure 4.1 Virtual Com connection diagram

## 4.1 Setup of a virtual COM driver

### 4.1.1 Pre-installation requirements

Please check the operation system on your PC complied with the following requirements:

- Processor: Intel-compatible, Pentium class
- Operation system: Windows Server 2003, Windows XP, Windows 2000, Windows NT 4.0 SP5 or later, Windows Me, Windows 98, Windows 95, Microsoft NT/2000 Terminal Server, Citrix MetaFrame

### 4.1.2 Cautions on Use

**Appendix A.** The Virtual COM driver supports firmware AP v3.0 and later of SE5404D Ethernet Serial Server-Ethernet Servers.

### 4.1.3 Limitation

The Virtual COM driver provides user to select up to 256 **COM ports** as Virtual COM ports in a

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SerialManager Utility PC. User can select them from a list of COM ports, which is from COM1 up to COM256.

### 4.1.4 Installation

**Appendix B.** Make sure you have turned off all anti-virus software before beginning the installation. Run the Virtual COM setup file included in the CD to install Virtual COM driver for your operating system.

**Appendix C.** In the end of the installation, please select one or two COM ports to become the Virtual COM ports.

### 4.1.5 Uninstalling

1. From Windows Start menu select Setting, Control Panel, Add/Remove Programs.
2. Select **Serial IP** in the list of installed software.
3. Click the **Add/Remove** button to remove the program, or From Windows Start menu select Programs, Serial IP for ATOP, **Uninstall Serial IP** to remove the program.

## 4.2 Virtual COM communication

### 4.2.1 Enable Virtual COM on SE5404D

**Appendix D.** From web browser access to E5404 by typing its IP address,

- ➔ click on "***COM1*"** link to access COM1 page,
- ➔ on the top half of the page click on "***TCP Server***"
- ➔ C***Virtual COM*** to Enable COM driversenable **Virtual COM** by putting a check in front of the "Enable" button, then t
- ➔ Enter in the local port number in the "***Local Port***" field as indicated in the following figure: (ref Figure 4.2)

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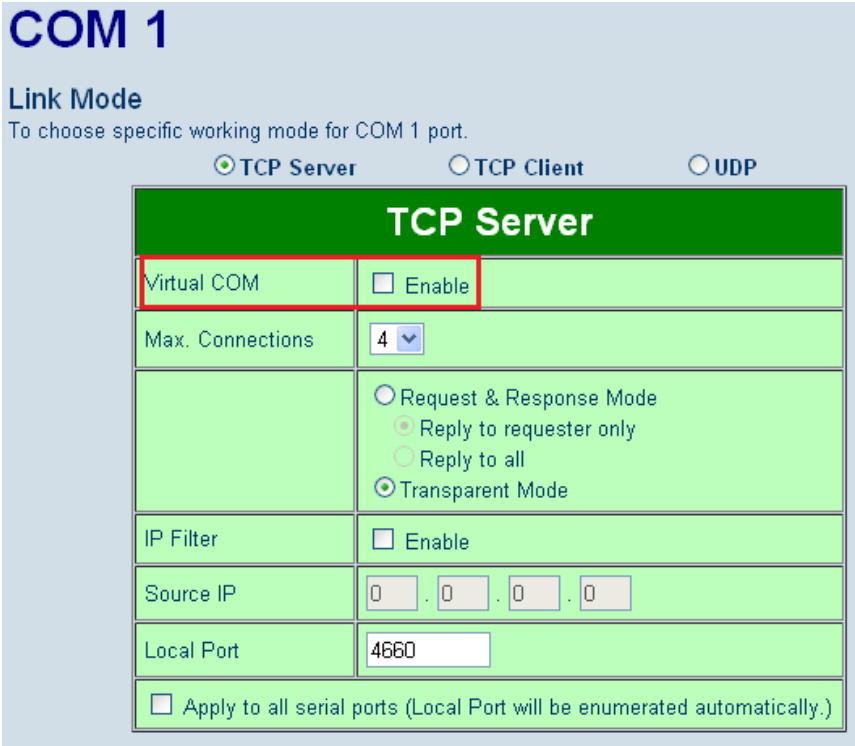


Figure 4.2 Enable Virtual Com Or you can

### 4.2.2 Run Serial/IP for Atop on PC

In the Window Start Menu, go to “Programs”, select “Serial/IP for ATOP” and select “Control Panel”. When “Select Port” windows pop-up, please select the serial port you want to configure. Then the configuration window will appear. (ref Figure 4.4)

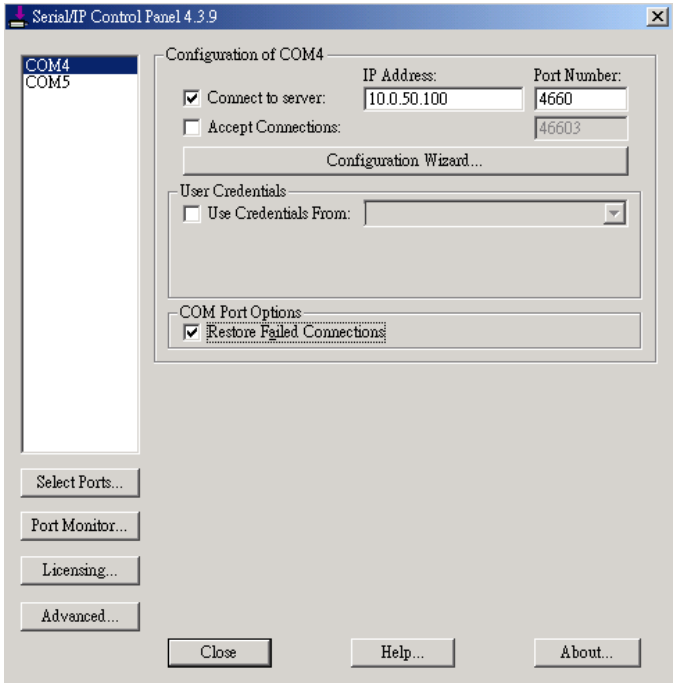


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Figure 4.4 Serial/IP for Atop configuration

At the right side of Figure 4.4 is a sample Virtual COM Control Panel window. At the left side is the list of the COM ports that you have selected (in the **Select Ports** window) for use by the Virtual COM Redirector. If you wish to change which ports appear in this list, use the **Select Ports** button.

Each COM port has its own settings. When you click on a COM port, the Control Panel display changes to reflect the settings for that COM port.

**NOTE:** When you change settings for a COM port, the changes are effective immediately. There is no separate confirmation dialog to confirm or cancel your changes.

## 4.3 Configuring Virtual COM Ports

You configure each Serial/IP COM port as follows: (ref Figure 30)

1. Select a COM port in the list.
2. For **IP Address of Server**, enter a numeric IP address for the serial server.
3. For **Port Number**, enter the TCP port number that the serial server uses to provide its serial ports to the network.
4. For **Server Credentials**, the default is **No Login Required**. If your serial server does require a login by the Virtual COM Redirector, the Virtual COM Redirector needs to provide a username and/or password every time an application tries to use the serial server.
5. Click the **Configuration Wizard** button and then click the **Start** button that appears in the wizard window. This important step verifies that the Virtual COM Redirector can communicate with the serial server using the settings you have provided. If the **Log** display does not show errors, click the **Use Settings** button in the wizard, which makes the recommended settings effective and returns you to the Control Panel to continue with the following steps.(ref Figure 4.5)

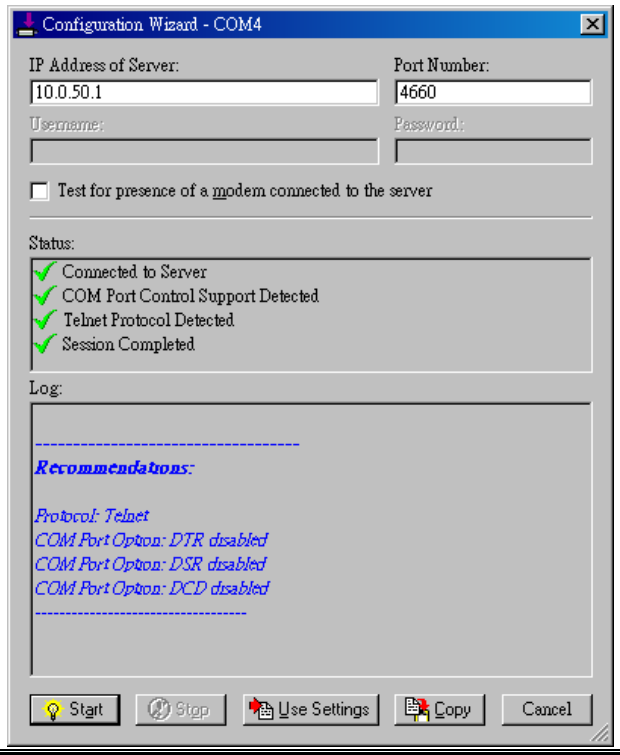


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Figure 4.5 Configuration Wizard

6. For **Connection Protocol**, the setting must match the TCP/IP protocol that the serial server supports. The Configuration Wizard is usually able to determine the correct setting.
7. For **COM Port Options**, the settings must match the COM port behavior expected by the PC application that will use this COM port. The Configuration Wizard will recommend a combination of settings.

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# 5. SNMP Setup

## 5.1 SNMP Network Management Platform

SE5404D is an SNMP device that allows many popular SNMP Network management platforms such as HP OpenView and SunNet Manager to conduct on the SerialManager Utility.

Depending on the network management tools you are using, device (SE5404D) information can be collected from running the management tools including **IP address, DNS name, system descriptions and NIC** information etc.

## 5.2 Using NetworkView As An Example

The NetworkView is a compact network management tool from NetworkView Software, Inc. (www.networkview.com). It discovers all TCP/IP nodes in a network using DNS, SNMP and ports information and documents with printed maps and reports for future use. You may visit their web sites and get a free download.

To use NetworkView, you will need to download and install the tool on ones PC (**Windows NT and Windows 9x only**). Please refer to the installation instructions that come with the tool.

After you have done the NetworkView installation, start NetworkView.

1. Click on the button to open a new file. The following screen appears, in the **Addresses field**, Enter in the IP address range to search(Figure 5.1).

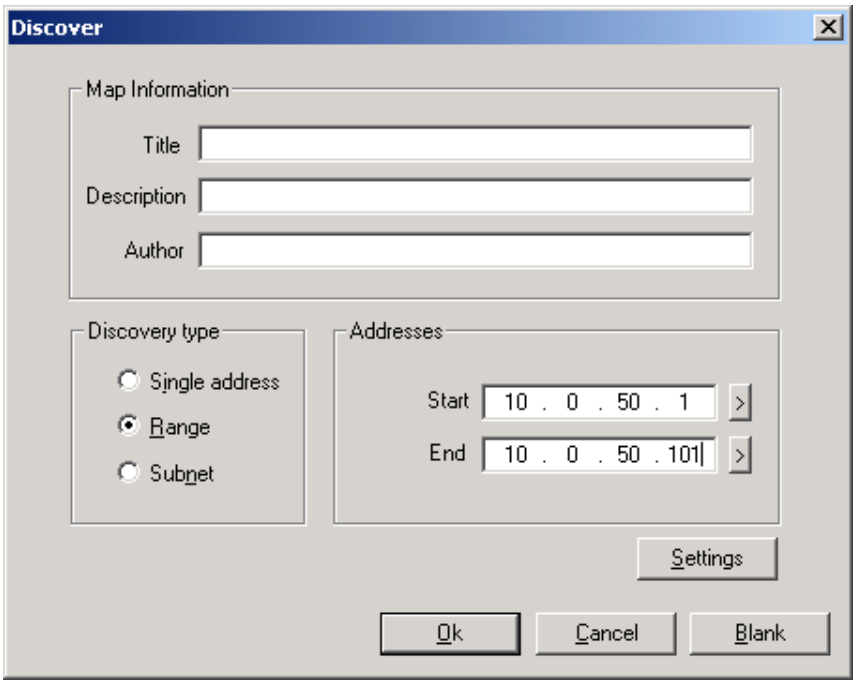


Figure 5.1 NetworkView-IP discovery parameters setup

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Click on “OK” and the following dialog box appears. It displays the searching progress(Figure 5.2).

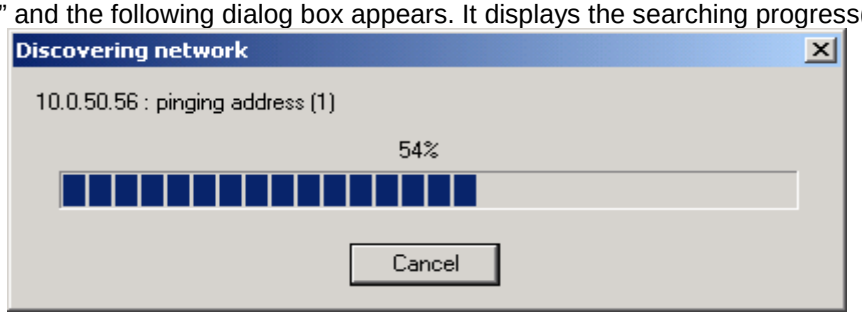


Figure 5.2 Discovering network

2. When the search is completedd, NetworkView will display the devices found in the main window, as shown in the following diagramFigure 5.3.

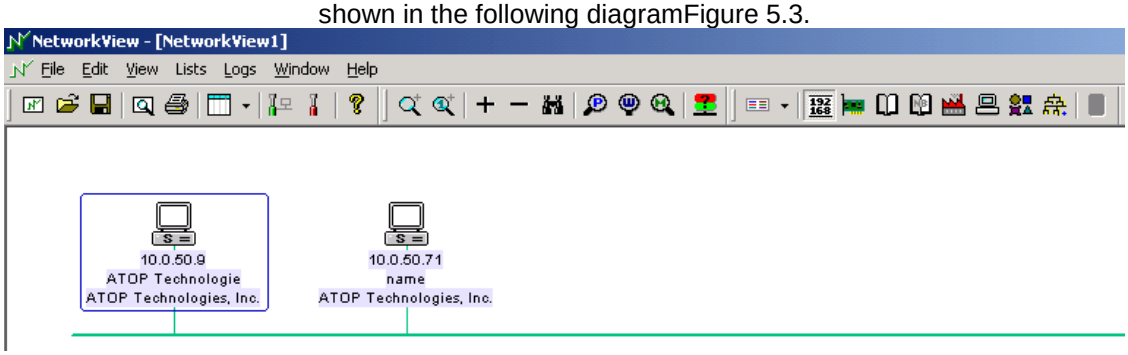


Figure 5.3 NetworkView- main window

3. Double-click on the device icon to display information about the device, including IP Address, Company, SysLocation (Max 15 characters), SysName (Max 9 characters) and types etc(Figure 5.4).

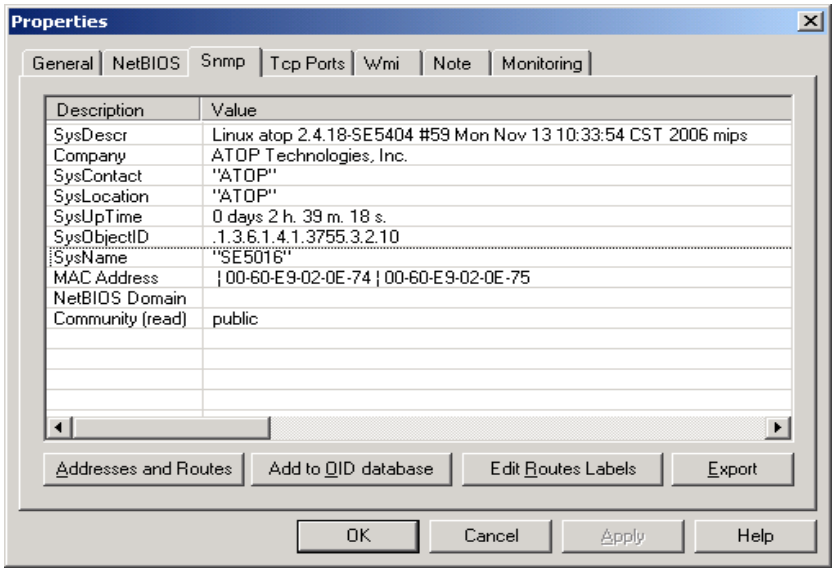


Figure 5.4 NetworkView-Node details

**NOTE:**

1. The NetworkView tool is limited to information extracting and viewing only.
2. To modify the configurations please use the web server, Telnet or SerialManager configuration utilities.

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# 6. Start Writing Ones Own Applications

Before you start writing ones host applications or programs to interact with SE5404D, please make sure one have done the following.

## 6.1 Preparing The System

1. Properly connect SE5404D hardware including power, Ethernet and serial cable
2. Properly configure the parameters of SE5404D including connection type, IP address, gateway IP address, and network mask accordingly (see chapter 3 **Hardware Installation** section).
3. Configure SE5404D as TCP Server using default TCP port number 4660.
4. The host (PC) application program must be configured as a TCP client and connects to SE5404D with designated TCP port number 4660 for COM1.
5. Make sure SE5404D is running by checking theSE5404D running status through **SerialManager** configuration utility.

## 6.2 Running The Sample Program

Sample programs written in VB and VC++ included in package are provided for your reference, source codes are also included. Test program can be found in the product CD or diskette under the directory of ***sample**vb_ap*** and ***sample**vc_ap*** respectively.

There are two test programs, TCPTEST written in Visual Basic and TCPTEST2 written in Visual C++.

### 6.2.1 TCPTEST in Visual Basic

This sample program (Figure 6.1) is written in Visual Basic 5.0 with Winsock Controls. It shows you how to send and receive data between host (PC) and SE5404D via Ethernet in two socket ports.

Run Visual Basic and open sample program tcptest.vbp, after the program is started successfully, you can start testing functions. For more information, please press **Help** in the program to get detail explanation.

**NOTE**: Please be sure the Microsoft visual studio family or its equivalent software is installed on the computer. Otherwise the sample program will not run.

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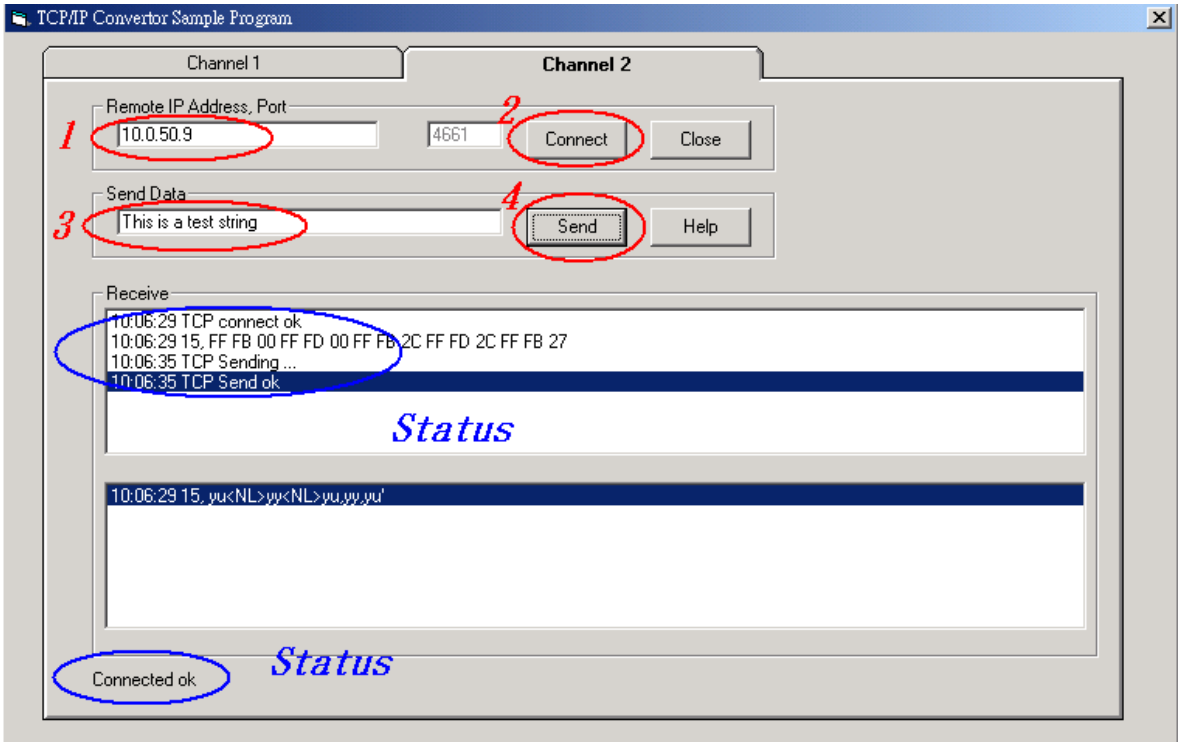


Figure 6.1 TCP test sample program in Visual B

### 6.2.2 TCPTEST2 in Visual C

Enter in the following command in the command line prompt(Figure 6.2):

**TCPTEST2 IP_Address Port_Number**

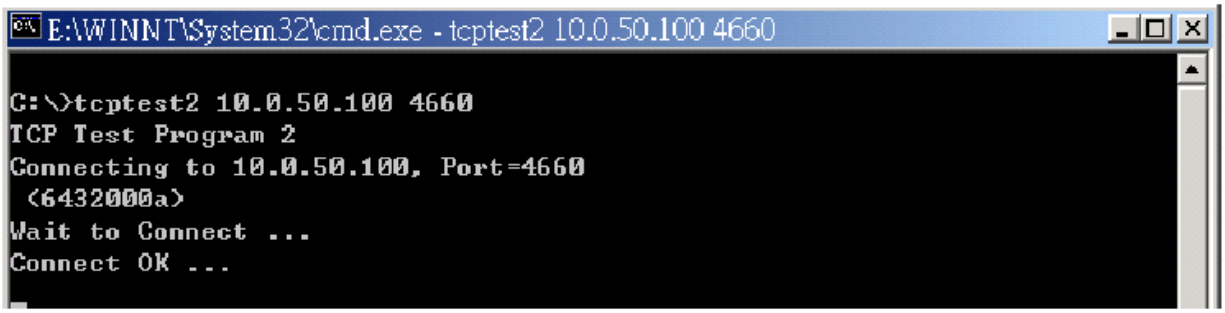


Figure 6.2 TCP test sample program in Visual C

The command ***tcptest2 10.0.50.100 4660*** brings you to connect to a TCP server of IP address *10.0.50.100* and port number *4660*, the received data is displayed on the screen and the data typed in is sent to the TCP server of the designated port number. You can also send binary data in hex format with a leading character "\". For example, "\00" and "\FF" represent ASCII code 0 and 255 respectively.

You can also use modem to connect to the serial server. Command "***AT\Od***" sends standard AT command to the modem which in return responds with "***OK\0D\0A***" message to the host application.

Always use '**=**' then **Enter** key to exit the program.

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# 7. Diagnostics

There are several ways you can check on the status and availability of SE5404D.

## 7.1 Use Standard TCP/IP Utility *ping* Command

From Windows **Start** menu, select **Run** and Enter in "**ping <TCP Server IP address>**"(Figure 7.1).

If the connection is established, the Reply messages are displayed, otherwise it will indicate Request timed out.

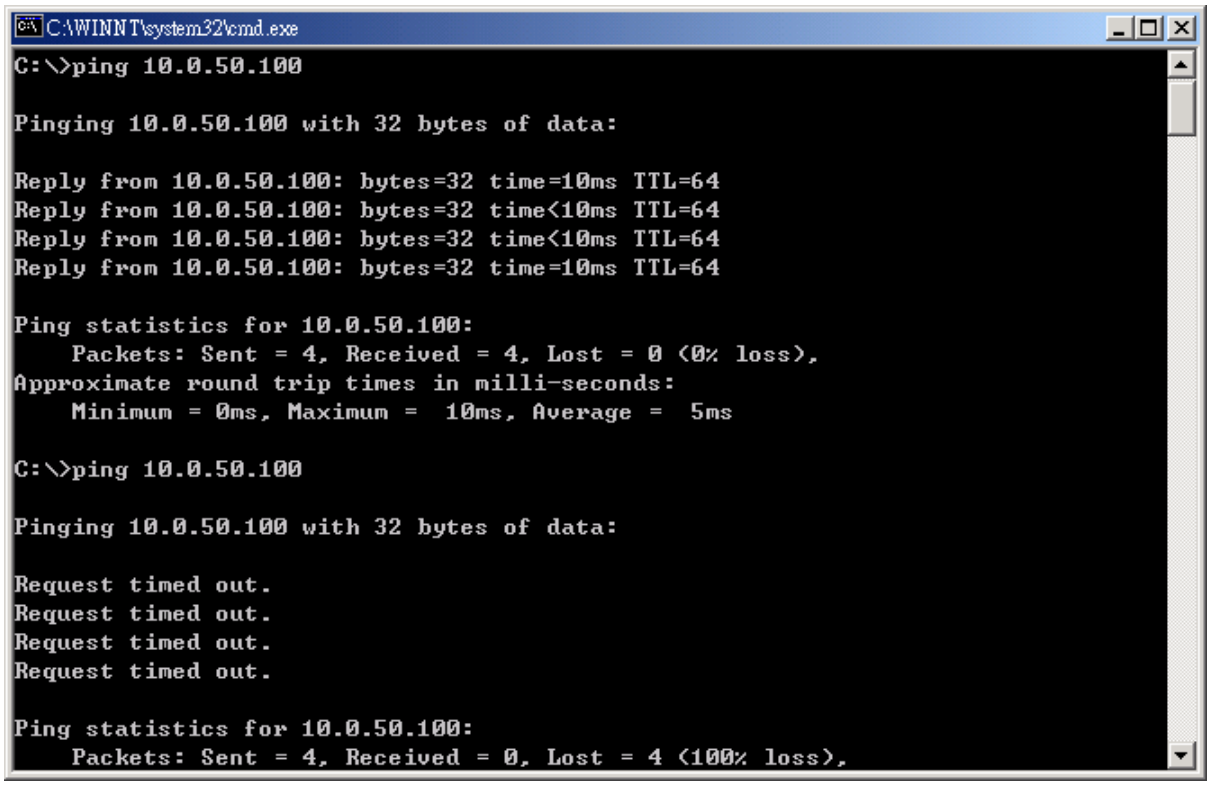
C:\WINNT\system32\cmd.exe
C:\>ping 10.0.50.100
Pinging 10.0.50.100 with 32 bytes of data:
Reply from 10.0.50.100: bytes=32 time=10ms TTL=64
Reply from 10.0.50.100: bytes=32 time<10ms TTL=64
Reply from 10.0.50.100: bytes=32 time<10ms TTL=64
Reply from 10.0.50.100: bytes=32 time=10ms TTL=64
Ping statistics for 10.0.50.100:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 10ms, Average = 5ms
C:\>ping 10.0.50.100
Pinging 10.0.50.100 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 10.0.50.100:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

Figure 7.1 Standard TCP/IP utility ping command

## 7.2 Use SerialManager Configuration Utility Program

Use SerialManager Utility configuration program that comes with the product CD or diskette to check on the status of SE5404D. The status and version can be read from the tool.

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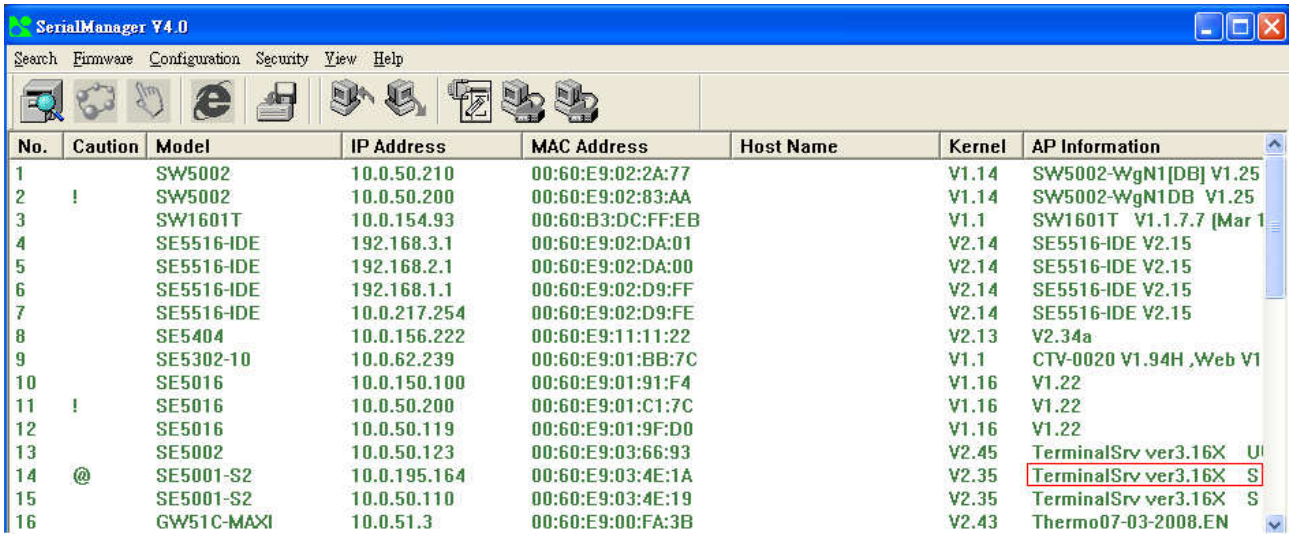


Figure SerialManager configuration utility

## 7.3 Use TCPTEST.EXE or TCPTEST2.EXE Sample Program

Use sample programs TCPTEST.EXE and TCPTEST2.EXE that comes with the product CD or diskette to check on the status of SE5404D. Please refer to chapter 6.2 to run the sample programs.

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# Appendix A: Specifications

## A.1. Hardware Specification

| | Specifications |
|---|---|
| **CPU** | • 32-bit Embedded CPU<br>• 266MHz |
| **Flash Memory** | • 8M Bytes |
| **DDRAM** | • 32M Bytes |
| **EEPROM** | • 8K Bytes |
| **Host Communication** | • IEEE802.3 base band<br>• TCP/IP, UDP, SNMP, HTTP, Telnet, ARP, BOOTP, DHCP, ICMP,NTP |
| **Default** | • Built-in default key to restore factory default settings |
| Network Interface | • Dual 10/100Mbps Fast Ethernet auto-detection |
| Networking Protection | • Built-in 2.0KV magnetic isolation |
| Serial Interface for SE5404D | • RS-232/ RS-422/ RS-485 software selectable. The default setting is RS-232 |
| Serial Interface for SE5404D-S5/ SE5404D-Sis | • RS-422/ RS-485 software selectable. The default setting is RS-422 |
| SerialPort Communication | • RS-232: EIA-RS-232C standard, Full Duplex, DB9<br>• RS-485: 2/4 wires, Half/Full duplex, Terminal Block<br>• RS-422: 4 wires, Half/Full duplex, Terminal Block<br>• Parameters<br>1) Baud-rate: 1200 bps ~ 921600 bps (**SE5404D-Sis only up to 230400**)<br>2) Parity: None, Even, Odd, Mark, Space<br>3) Data bits: 7,8<br>4) Stop bits: 1,2<br>5) Packet Delimiter: by inter-character timer, or by characters pattern terminator<br>6) Flow Control: None, Hardware CTS/RTS, Software Xon/Xoff |
| **LED indication** | • RUN * 1<br>• 100Mbps LAN * 2<br>• LAN Active *2<br>• COM Port TX* 4 |

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| | |
|---|---|
| | • COM Port RX* 4<br>• Power *1 |
| **Power Requirement** | • DC +9~30V DC Jack or Terminal Block, 500mA@ 12VDC =6 Watt Max |
| **Temperature** | • Operation: 0℃ to 60℃<br>• Storage: -20℃ to 85℃ |
| **Humidity** | • 20%~70% non-condensing |
| **Housing** | • 197mm(L) x 112mm(W) x 37mm(H) |

## A.2. Software Specification

| Item | Specifications |
|---|---|
| **Protocol** | • TCP, UDP, ARP, ICMP, SNMP, HTTP, Telnet, BOOTP, DHCP,NTP |
| **Configuration** | • Configuration information for both TCP/IP and serial ports is written in the EEPROM.<br>• Configuration utilities of Windows 95/98/2000/NT/XP/2003 are provided. |
| **Internal Buffer Size** | • TCP receiving buffer size = 8K bytes<br>• TCP transmitting buffer size = 16K bytes<br>• RS-232 or RS-485/RS-422 receiving buffer size = 4K bytes<br>• RS-232 or RS-485/RS-422 transmitting buffer size = 4K bytes |

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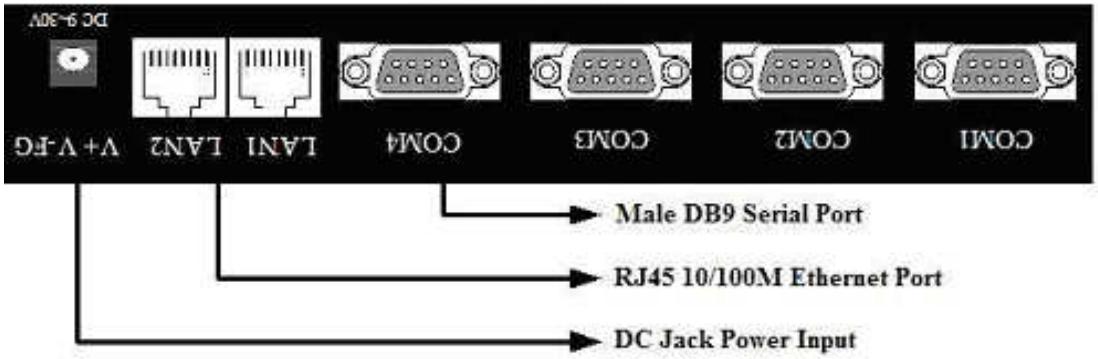
# A.3 Panel Layout and Connector Pin Assignments

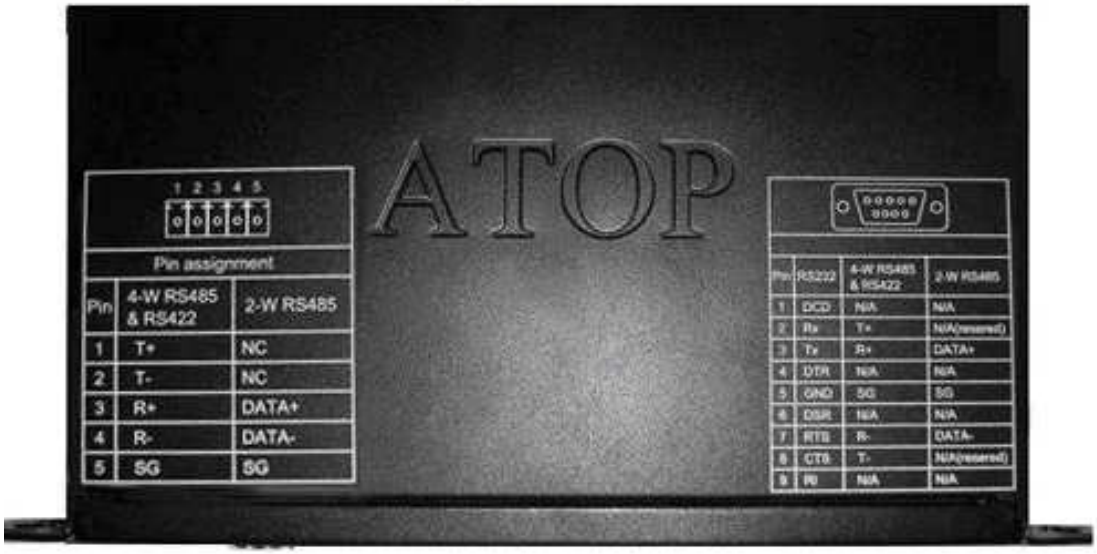
## A.3.1. Panel Layout

### A.3.1.1 DB9 for SE5404D (RS-232/RS-422/RS-485)

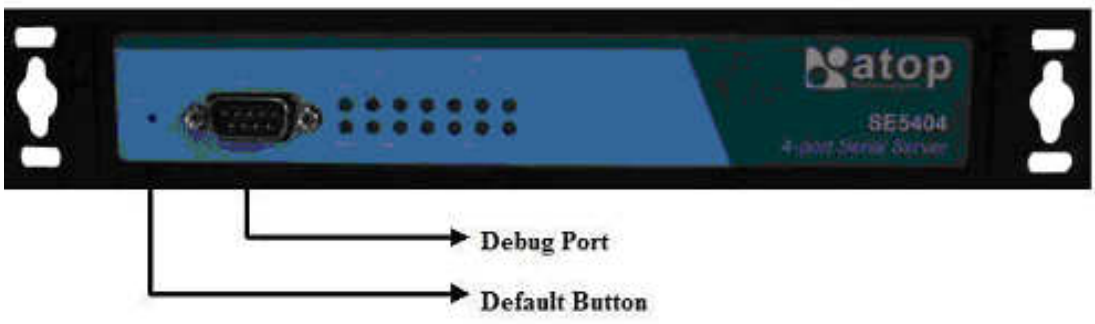
Rear Panel View




Top Panel View




Front Panel View

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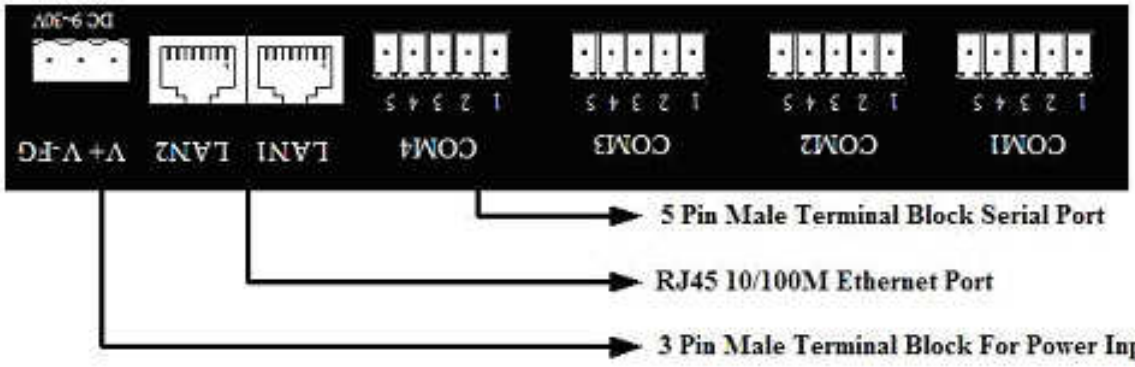
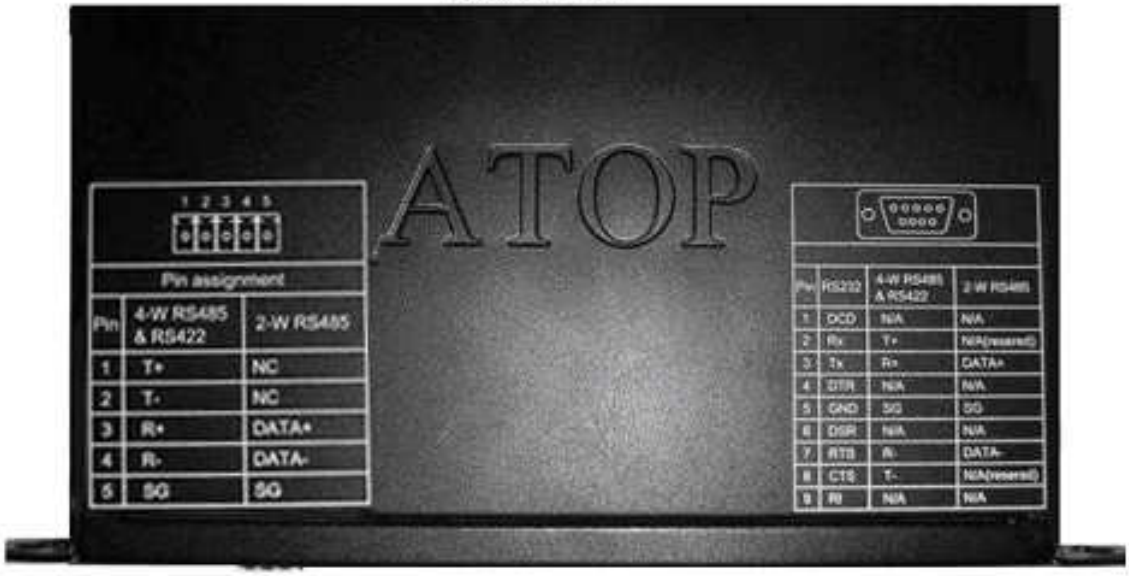
### A.3.1.2 SE5404D-S5 / SE5404D-Sis (only RS-422/RS-485)

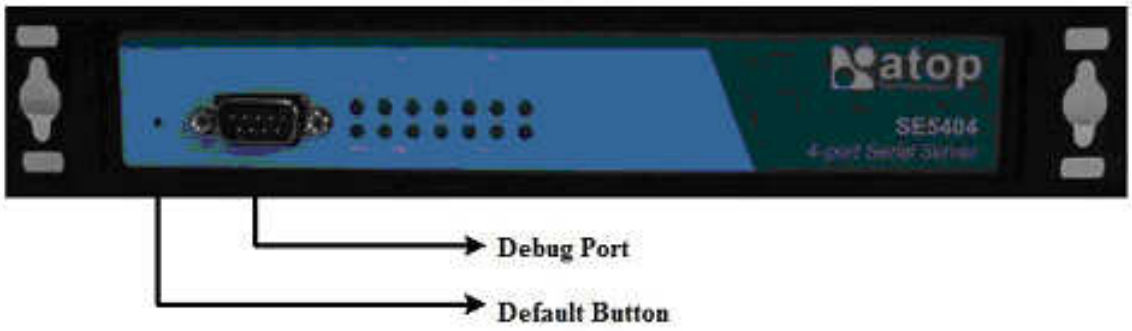
**Rear Panel View**




**Top Panel View**




**Front Panel View**

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### A.3.2.1 DB9 Pin Assignments

The pin assignments of DB9 connector on SE5404D is shown in the following table:

| Pin# | RS-232<br>**Full Duplex**<br>for SE5404D | RS-422/4-Wire RS-485<br>**Full Duplex**<br>for SE5404D | 2-Wire RS-485<br>**Half Duplex**<br>for SE5404D |
|---|---|---|---|
| 1 | DCD | N/A | N/A |
| 2 | RXD | **TXD+** | N/A (reserved) |
| 3 | TXD | **RXD+** | **DATA+** |
| 4 | DTR | N/A | N/A |
| 5 | SG (Signal Ground) | SG (Signal Ground) | SG (Signal Ground) |
| 6 | DSR | N/A | N/A |
| 7 | RTS | **RXD-** | **DATA-** |
| 8 | CTS | **TXD-** | N/A (reserved) |
| 9 | RI | N/A | N/A |

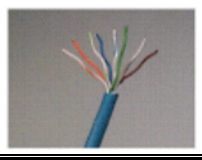
### A.3.2.2 Terminal Block Pin Assignments

The pin assignments of Terminal Block connector on SE5404D-S5 / SE5404D-Sis is shown in the following table:

| Pin# | RS-422/4-Wire RS-485<br>**Full Duplex**<br>for SE5404D-S5 / SE5404D-Sis | 2-Wire RS-485<br>**Half Duplex**<br>For SE5404D-S5 / SE5404D-Sis |
|---|---|---|
| 1 | T+ | NC |
| 2 | T- | NC |
| 3 | R+ | Data+ |
| 4 | R- | Data- |
| 5 | SG (Signal Ground) | SG (Signal Ground) |

### A.3.3.3 Ethernet Port (RJ-45)

1. Category 5 UTP cable, 8 core wires.



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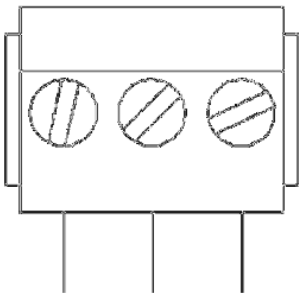
2. RJ45 Connector.

3. RJ45 Pin Assignment

| Pin Assignment | 568A Definition | 568B Definition |
|---|---|---|
| Pin1 | Green-White | Orange-White |
| Pin2 | Green | Orange |
| Pin3 | Orange-White | Green-White |
| Pin4 | Blue | Blue |
| Pin5 | Blue-White | Blue-White |
| Pin6 | Orange | Green |
| Pin7 | Brown-White | Brown-White |
| Pin8 | Brown | Brown |

You can choose either 568A or 568B definition. If you want to make a crossover cable, you should use 568A and 568B definition respectively in each terminal of a UTP cable.

## A.3.4 Power terminal block connection



F.G. VIN- VIN+

NOTE: It could be reversed for the Device will not be damage if the polarity is reverse..

## A.4 Buzzer/LED Message

### A.4.1 Buzzer

**“ ^ “:** Beep twice

**“ = “:** Beep off

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| Message | Description |
|---|---|
| ^==^========^^^<br>(5sec.) | Startup OK and AP firmware is enabled |

**Table 1. Buzzer Message**

### A.4.2 LAN LED

| Message | Description |
|---|---|
| 100 1(2) Off and Act1(2) Off | Ethernet Disconnected |
| 100 1(2) Off and Act1(2) On | 10Mbps Ethernet connected |
| 100 1(2) On with Green | 100Mbps Ethernet connected |
| ACT1(2)Blinking with Green | Data transmitting on Ethernet at 10/100Mbps |

**Table 2. LAN LED Message**

### A.4.3 COM Port LED

| Message | Description |
|---|---|
| COM1(2/3/4) TX LED off | No data is transmitting on COM port |
| COM1(2/3/4) TX LED on blinking state | Data is transmitting on COM port |
| COM1(2/3/4) RX LED off | No data is receiving on COM port |
| COM1(2/3/4) RX LED on blinking state | Data is receiving on COM port |

**Table 3. COM Port LED Message**

### A.4.4 RUN LED

| Message | Description |
|---|---|
| LED on | AP firmware malfunction or power is not properly on. |
| LED blinking (rate: 0.5Sec) | AP firmware is running |

**Table 4. RUN LED Message**

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# Appendix B: Upgrade System Firmware

After the new version of firmware is released, customers can download from www.Atop.com.tw. After you download the firmware, please follow these instructions listed below.

## B.1 Upgrade Procedure

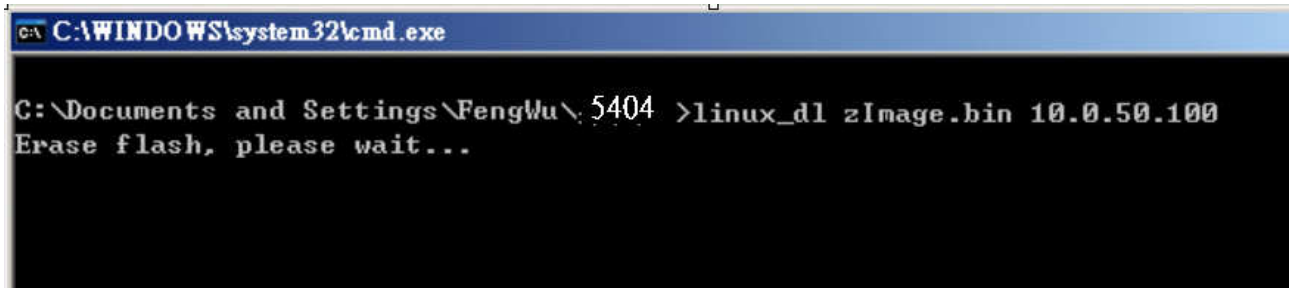
Please follow Appendix C if you want to use **SerialManager** to upgrade firmware. Follow the upgrading procedures below to upgrade to the latest firmware using a batch file:

- Make sure the PC and the SE5404D series on the same network. Use command **ping** or **SerialManager** Utility program to verify their availability.
- Edit "dll.bat " to fit the system requirements, Be sure to save ones modification
- Run linux_dl ,the following screen shall appear .

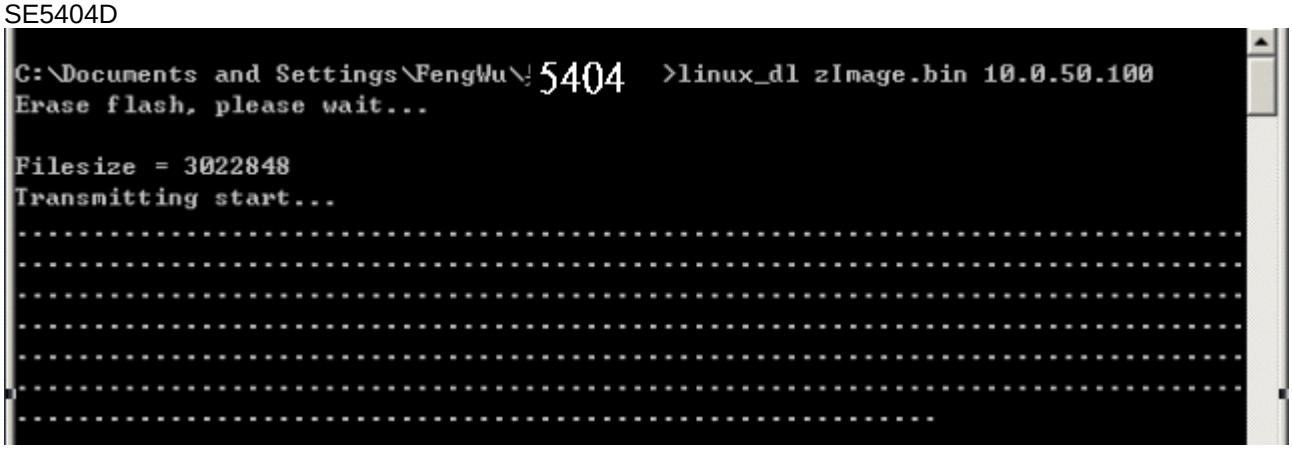
  For example：**linux_dl zImage.bin 10.0.50.100**

  - **Note : "linux_dl"** is the upgraded executing file and **zImage.bin** is the firmware file name; xxx.xxx.xxx.xxx is the IP address of SE5404D seriess

SE5404D will automatically restart each time the firmware is successfully download completed. When you get a new software version, please follow the sequences below to upgrade your SE5404D.




SE5404D

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## B.2 Critical Issues of Upgrading

If the upgrade is successful, SE5404D shall program the flash memory and the buzzer will beep 1 time before restarting. It takes around 5 seconds to complete the programming process. If an error occurs during the programming process, SE5404D will clear the corresponding memory and the system remains the same before the process.

## B.3 Error Messages

Firmware upgrade may not be successful if errors occur during the process.

| Error Cause | Message | Comments |
|---|---|---|
| Illegal Hex file format | Hex File Text Error | |
| | Hex File Check-Sum Error | |
| | Hex File Format Error | |
| | Hex File End of Record Error | |
| SE5404D handshaking problem | SE5404D ACK Start Address Error | |
| | SE5404D ACK Length Error | |
| | SE5404D Response Command Error | |
| Configuration file | Remote IP not found | |
| | Open configuration file failure | |

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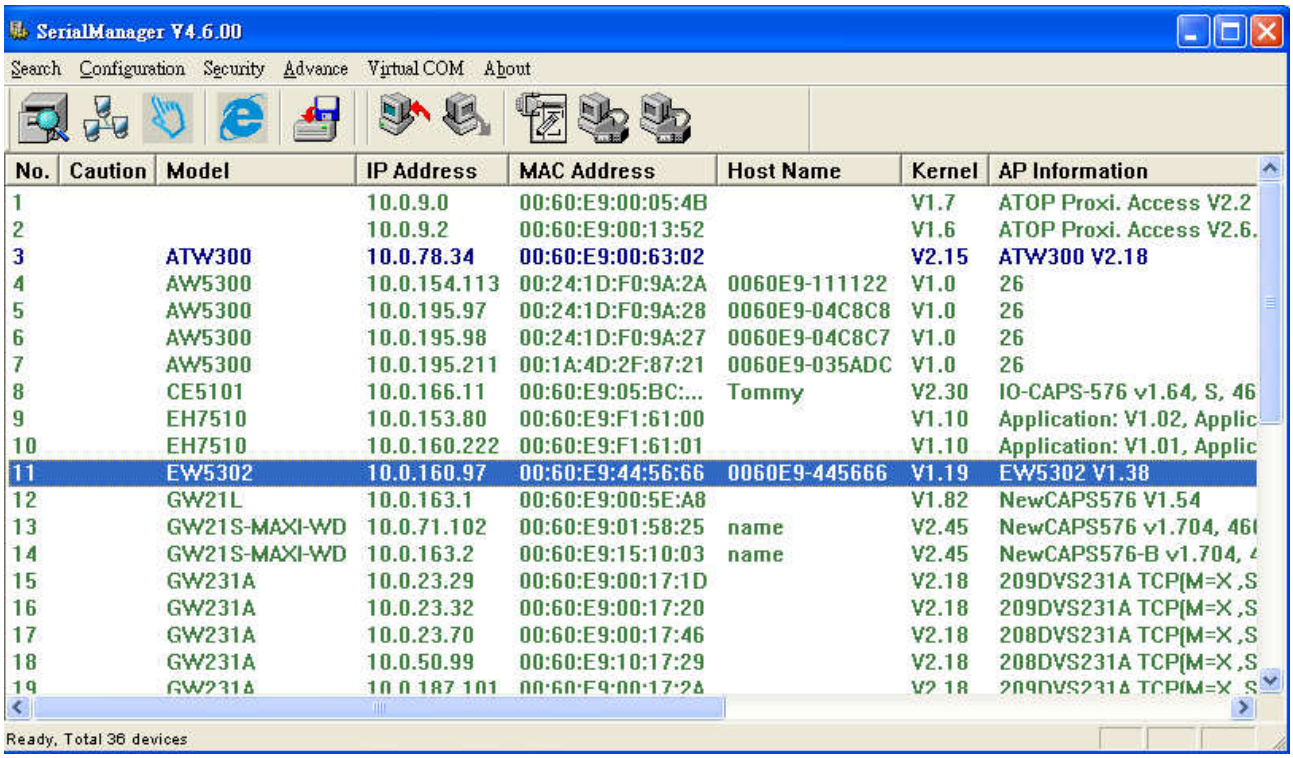
# Appendix C: Using SerialManager Utility

## C.1. SerialManager utility Introduction

**SerialManager** utility, developed by ATOP, is a special tool for device management and configuration. It can realize the daily management on various ATOP network devices for address search, device positioning, parameter configuring, and firmware downloading. Note that EW5302 is used to demonstrate the functionality of SerialManager instead of SE5404D.

## C.2. Interface

The operating interface of the **SerialManager utility** is shown below:




| Caution Field | Description |
|---|---|
| ! | IP conflict. There are two devices with the same IP address in the network. |
| @ | The device is using DHCP. |
| < | The device is being located. |
| + | You have logged into the device. |
| ? | MAC conflict. There are two devices with the same MAC address in the network. |

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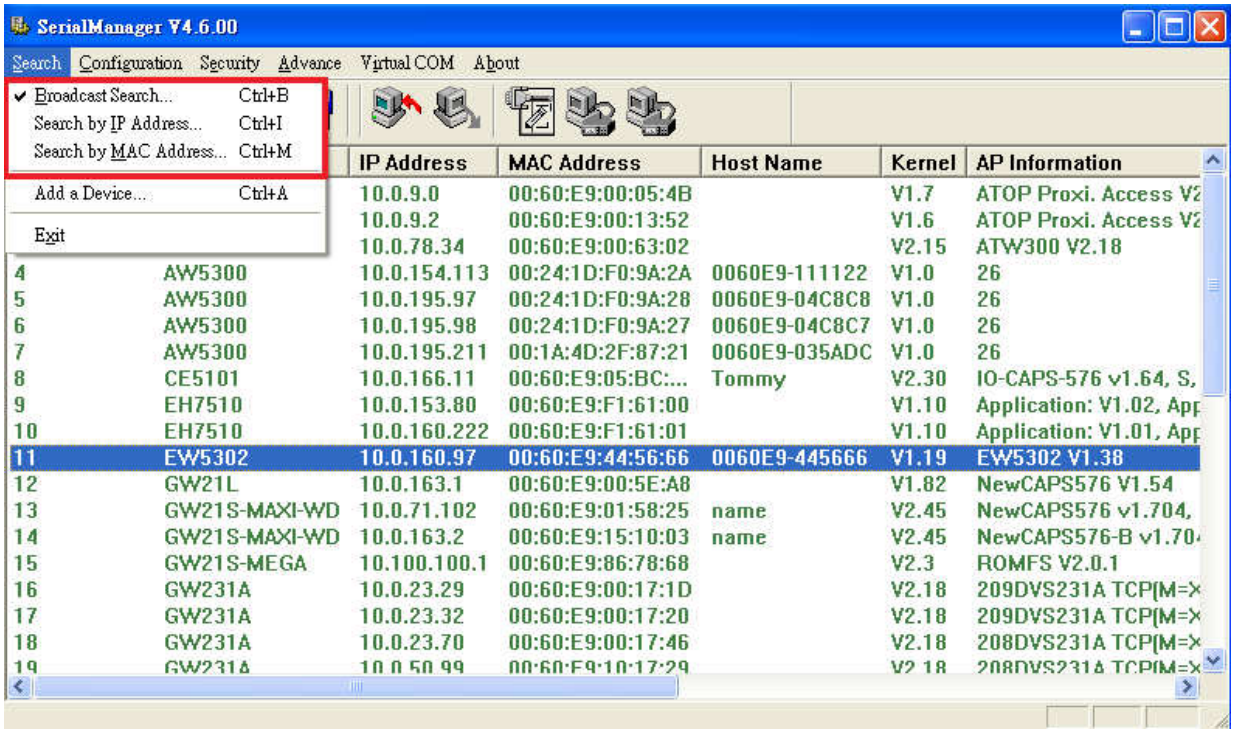
## C.3. Functions

### C.3.1. Device Search

This function is applied to search devices in the network. There are four methods to search devices, Search by Broadcast, Search by IP addresses, Search by MAC addresses and Rescanning devices by using the current search method. To select the search methods, users click the “Search” on the main menu which is shown below.




Alternatively, users can select by clicking the Rescan button on the toolbar as below.

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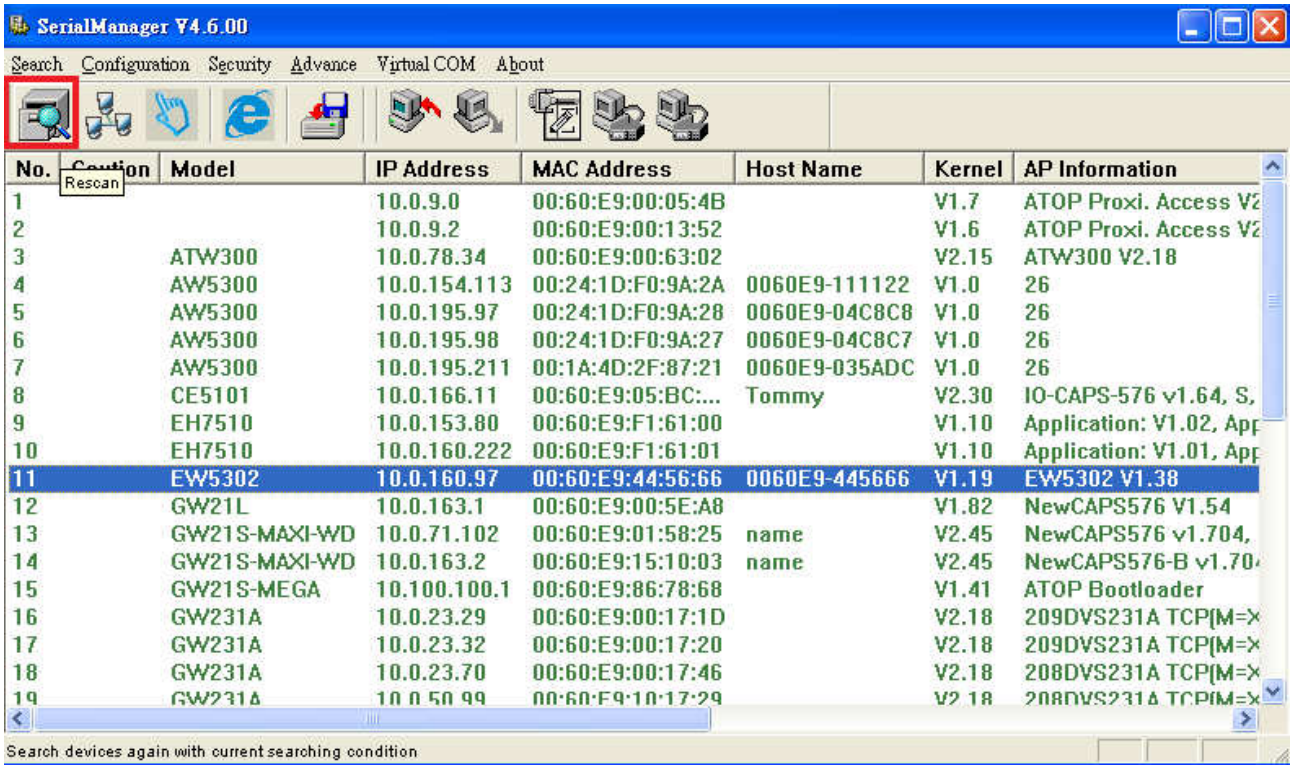


**Broadcast Search**

Once “Broadcast Search” is selected, a box will pop up as below. The user may type in or select different broadcast address based on the requirement.

**Search by IP address**

Once “Search by IP Address” is selected, an interface will pop up as below. Here user may have two options: Select an IP address to search or Search device in the range of IP address.

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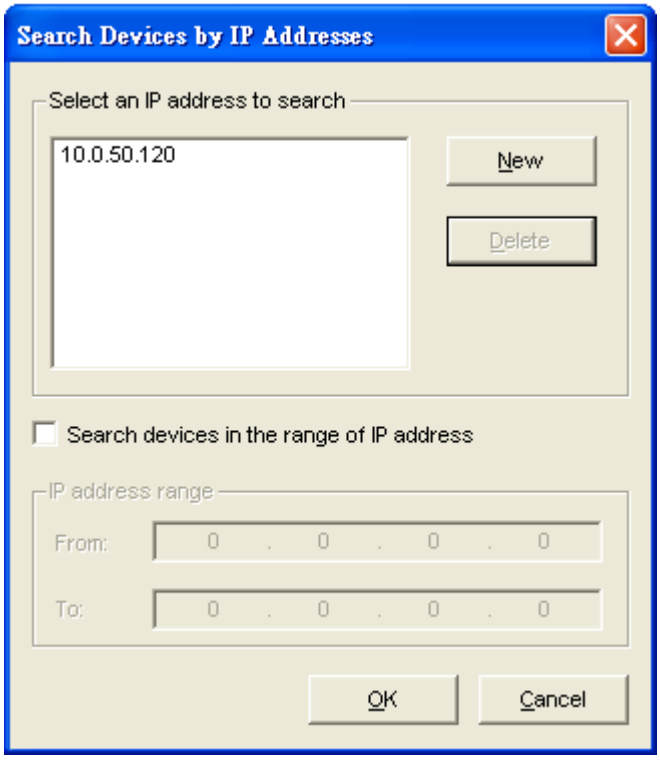
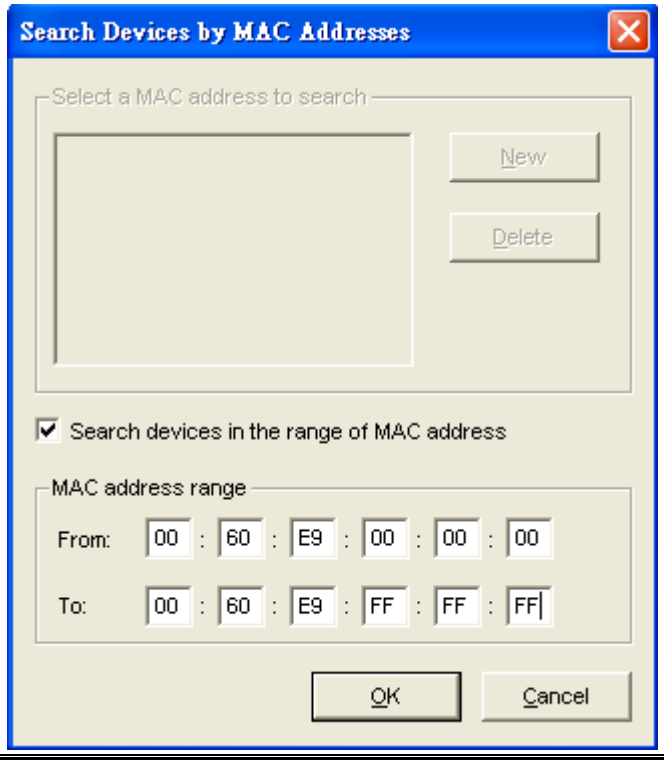



**Search by MAC Address**

If “Search by MAC Address” is selected, another box will pop up as below. Here the user may search in two ways: “Search a MAC address to search” or “Search devices in the range of MAC address”


Search Devices by MAC Addresses
Select a MAC address to search
New
Delete
Search devices in the range of MAC address
MAC address range
From: 00 : 60 : E9 : 00 : 00 : 00
To: 00 : 60 : E9 : FF : FF : FF
OK
Cancel

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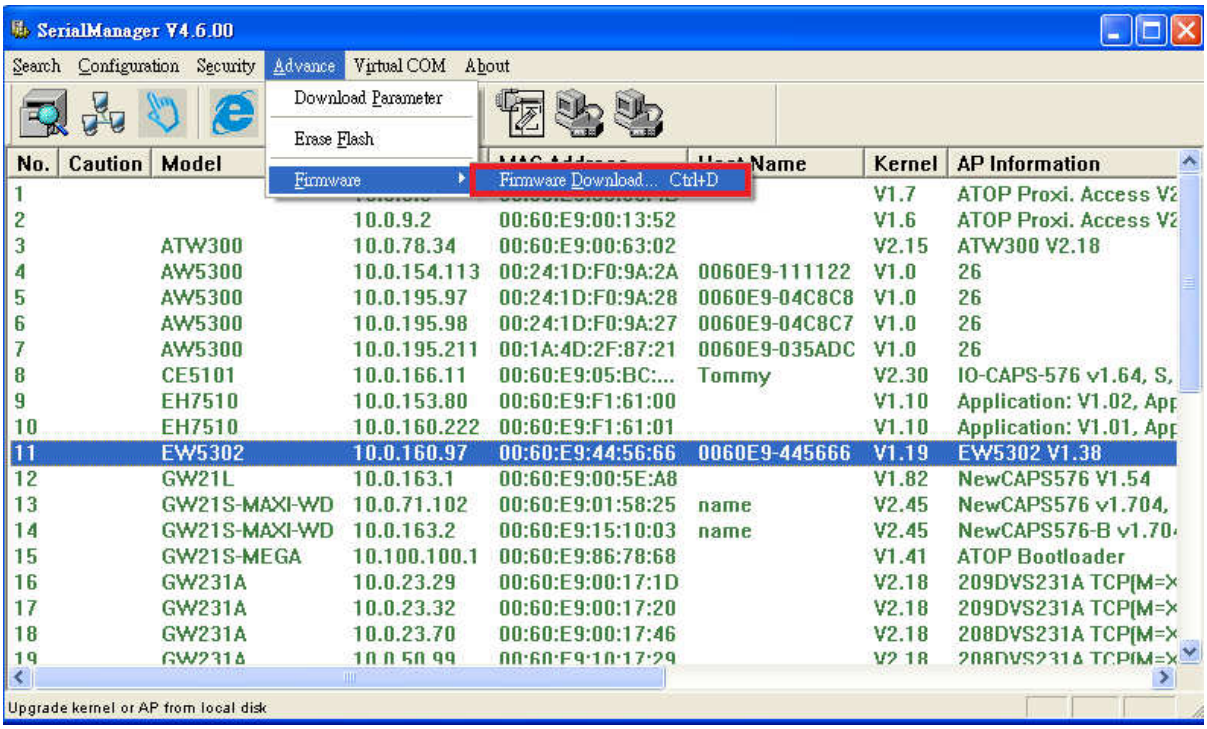
**Rescan**

Once the user click the “Rescan” button on the toolbar, the SerialManager utility shall re-search devices by using the current search way.

### C.3.2. Firmware

This function is applied to downloading a firmware into the selected device. The user can enter the window for downloading by firstly clicking a designated network device, and then selecting the submenu option “Firmware Download” in the main menu option “Firmware”, or directly clicking the button **Upgrade from disk**.

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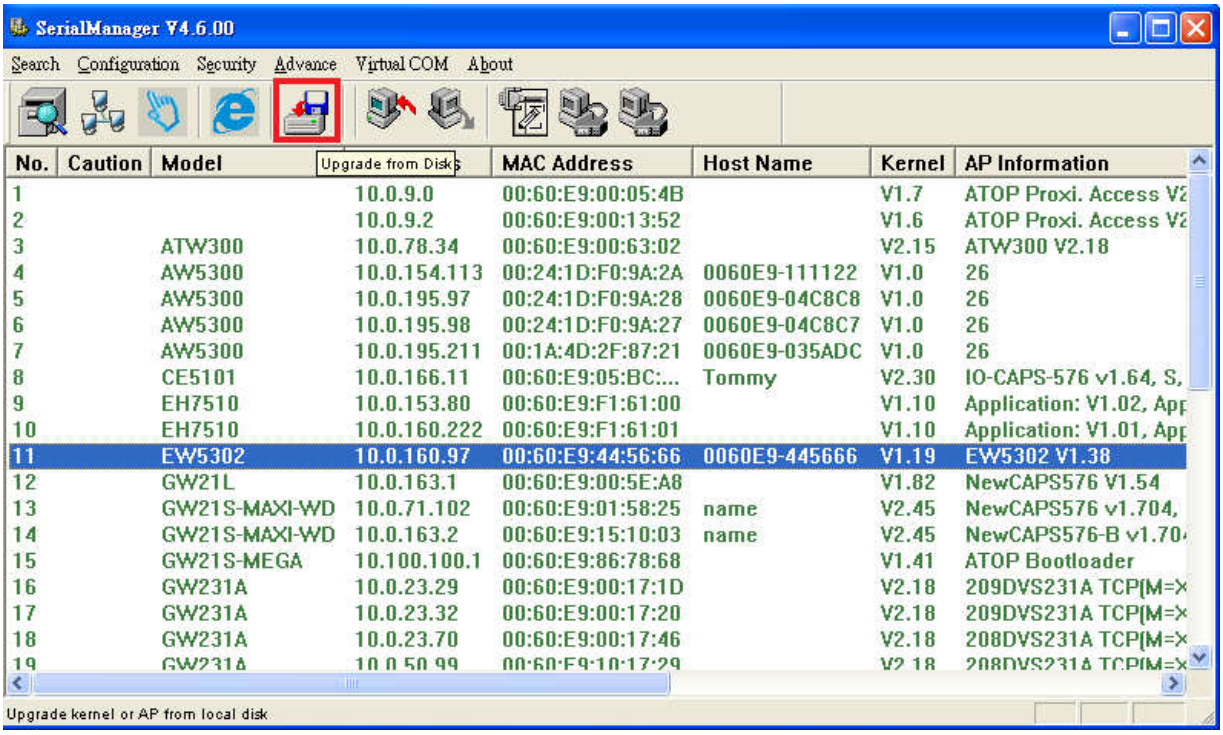
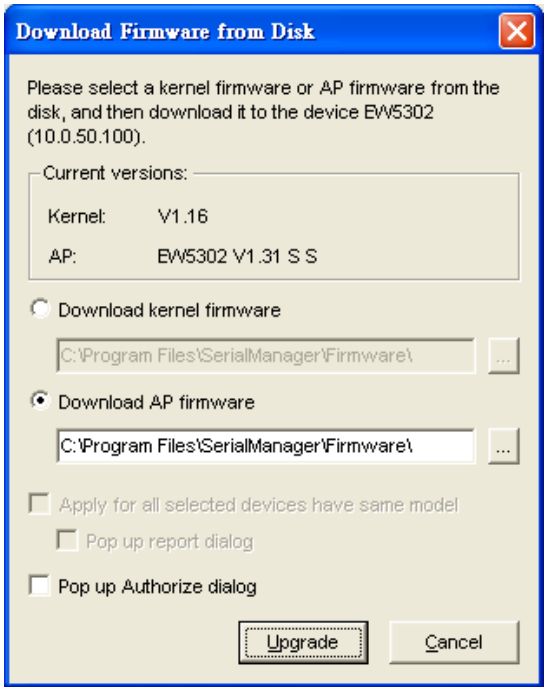



And then the user can select and download the required firmware from the disk, as shown in the figure below. The user can also select several same devices at one time, and realize the firmware updating for them by selecting **Apply for all selected devices have same model**.


Download Firmware from Disk
Please select a kernel firmware or AP firmware from the disk, and then download it to the device EW5302 (10.0.50.100).
Current versions:
Kernel: V1.16
AP: EW5302 V1.31 S S
Download kernel firmware
C:\Program Files\SerialManager\Firmware\
Download AP firmware
C:\Program Files\SerialManager\Firmware\
Apply for all selected devices have same model
Pop up report dialog
Pop up Authorize dialog
Upgrade
Cancel

### C.3.3. Configuration

This function is for device configuration to set up parameters, to import and to export the parameters, and to set up some options. Here is the list of configurations: “Network”, “SNMP”, “COM Port”, “Locate”, “Reset”, “Import Setting”, “Export Setting”, “Virtual COM”, “Config by browser” and “Options.”

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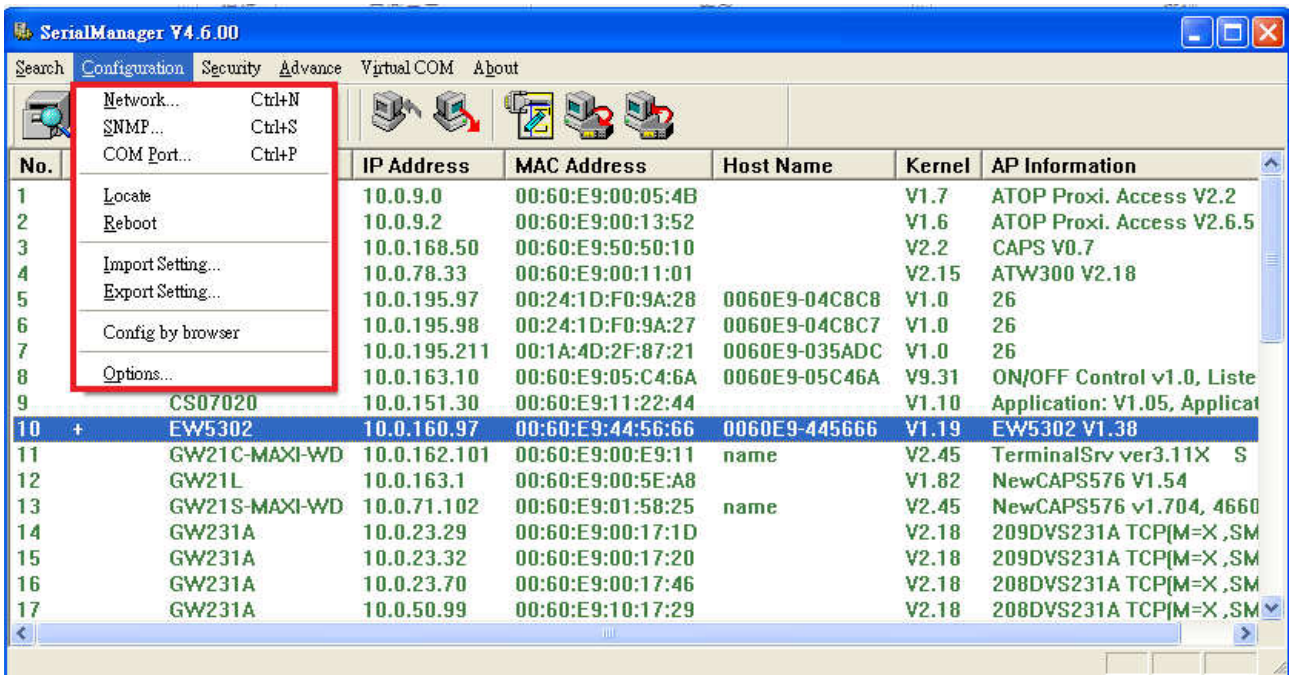
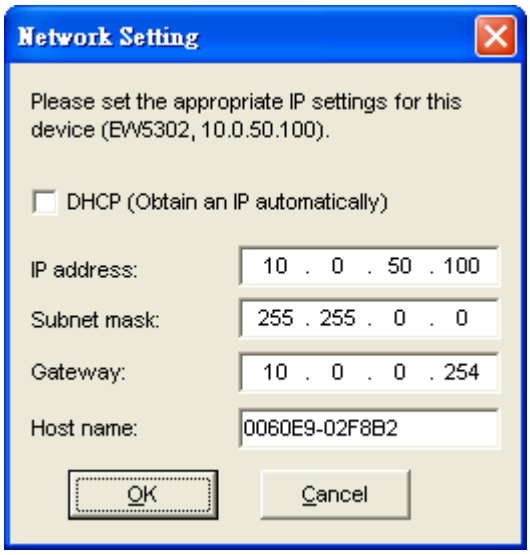
Users can carry out a configuration operating through menu or by clicking the corresponded button on the toolbar, shown as the figure below:




**Network**

The user can modify the IP address of any selected device, shown as the figure below. You can statically assign IP address, Subnet mask, and Gateway. Optionally, you can set up the device with a host name. You can select DHCP option to obtain an IP address automatically.


Network Setting
Please set the appropriate IP settings for this device (EW5302, 10.0.50.100).
DHCP (Obtain an IP automatically)
IP address: 10 . 0 . 50 . 100
Subnet mask: 255 . 255 . 0 . 0
Gateway: 10 . 0 . 0 . 254
Host name: 0060E9-02F8B2
OK
Cancel

**SNMP**

The user can modify SNMP settings of any selected device, shown as the figure below. The support SNMP fields are Name, Location, and Contact.

❋ **Note: This function will be enabled after a successful login.**

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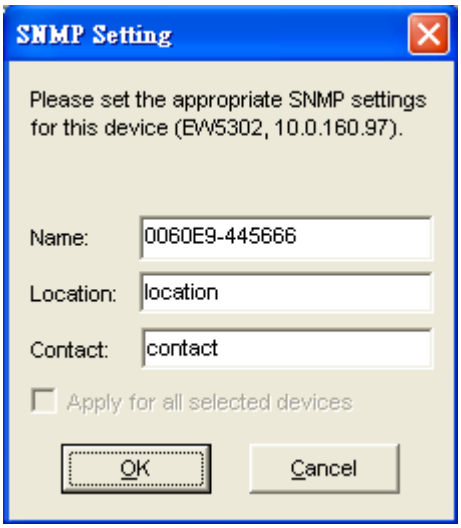


**COM Port**

ATOP has developed various Serial server products, and some of the ATOP devices are specially applied to some serial-port servers, while this function is applied to the configuration of COM port parameters only. The COM Port setting dialog is shown below.

❋ **Note: This function will be enabled after a successful login.**

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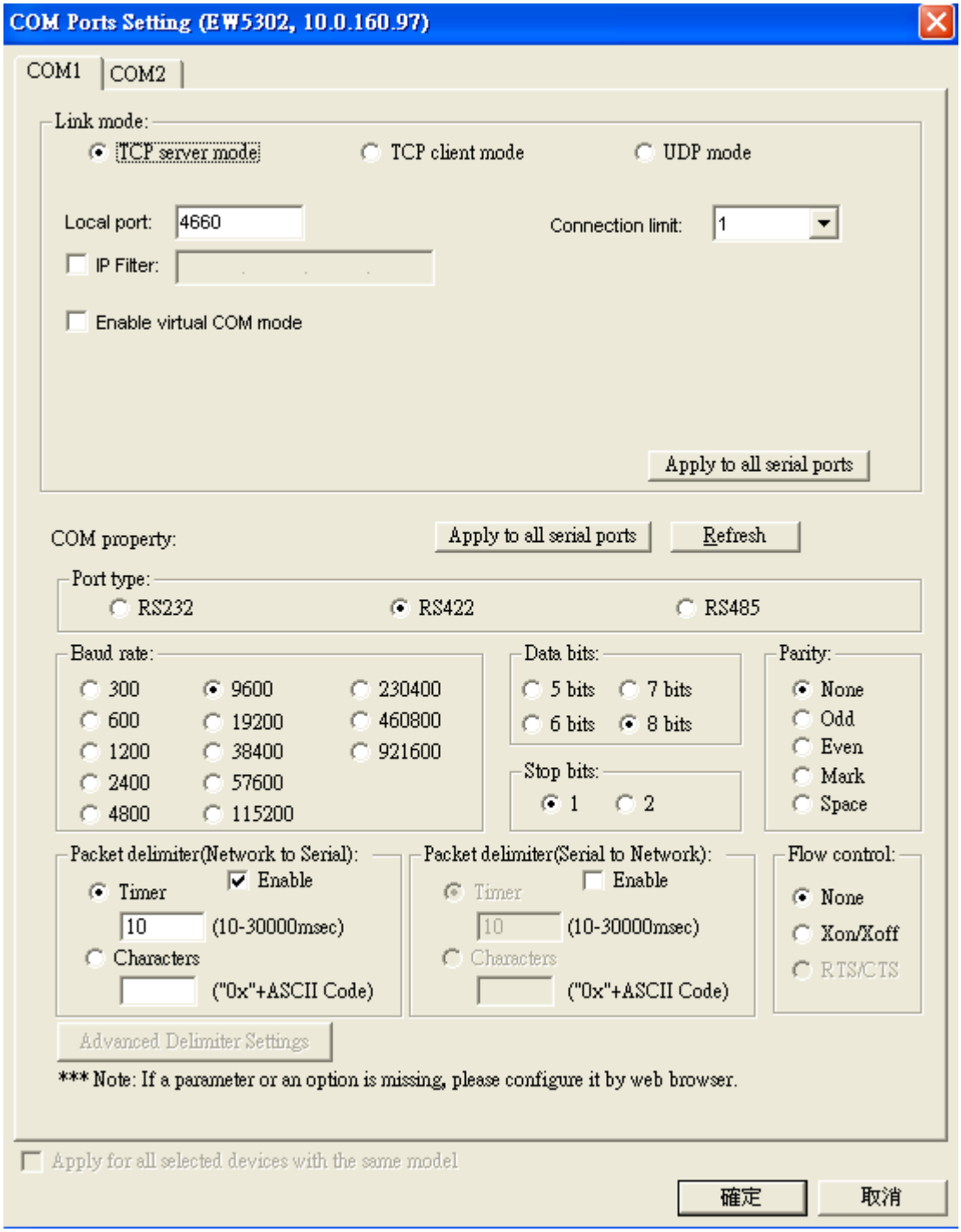


The user can also select several devices at once, and carry out the configuration for them at the same time by selecting “Apply for all selected devices with the same model”

❋ **Note: COM tabs: Generated automatically according to the COM port number of the device. If a device has 4 COM ports, there will be, for example, 4 tabs, COM1, COM2, COM3, and COM4.**

Link mode: this is to set up a TCP or UDP connection between the Serial port and the other network devices. Each COM port corresponds to a link mode, TCP or UDP, which is used to transfer data. The user can set each link mode and the working parameters according to requirements.

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COM property: this is to represent the working parameter of the Serial port including: Serial port type, baud rate, data bit, stop bit, parity bit, data packet delimiter and flow control, etc.

**Locate**

The user can apply this function to locate a device when its IP address is known, but its position is unknown. If you locate the device, it will beep. Users can locate the device by selecting the Configuration submenu **Locate** or clicking the **Locate** button on the toolbar.

**Reset**

The device should be restarted after a successful modification of parameter configuration. Users can also carry out a restart through the submenu option **Reset**.

**Import Setting**

If a network has a large number of devices which are used for a same purpose, it would be very complicated to carry out the parameter configuration for each device in the network one by one. Users can import the parameter configuration from a parameter file directly into all the devices in the network through the submenu option **Import setting** or by clicking the **Import setting** button on the toolbar. The dialog of import parameter settings is shown below.

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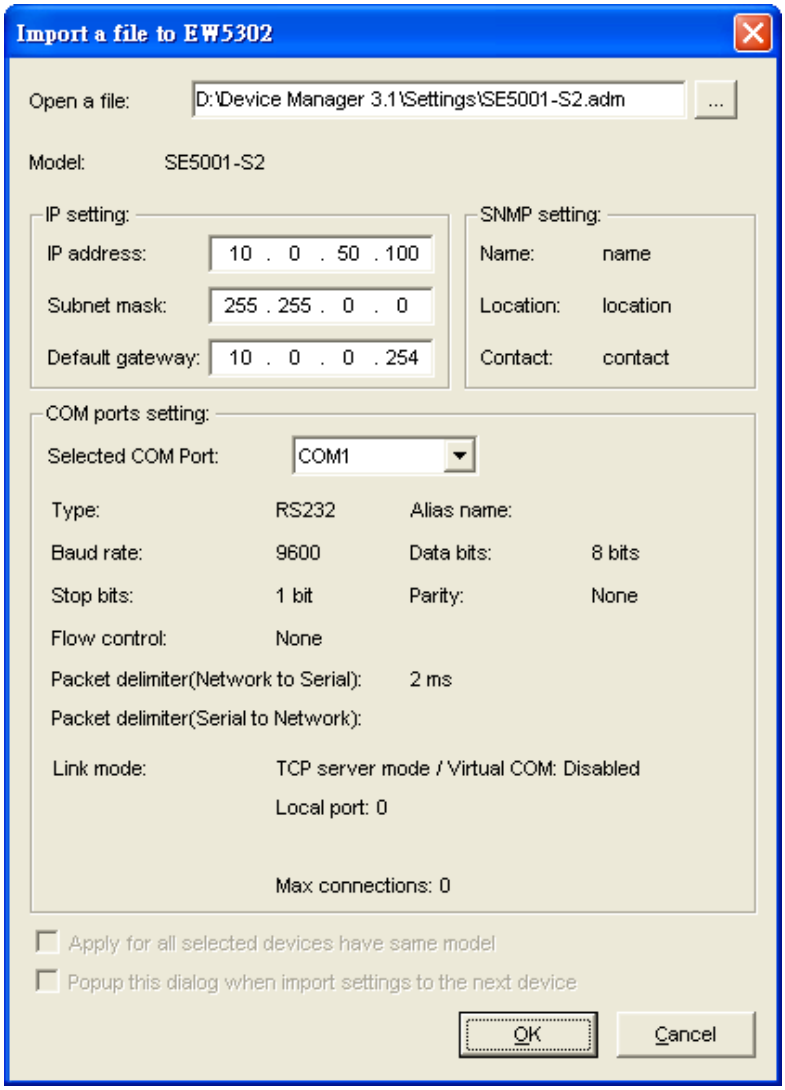


The user can also select several devices at once, and upload the configuration file into all the selected devices by selecting “Apply for all selected devices have same model.”

**Export Setting**

Users can save the parameter information to a standard device into a parameter file through the submenu option **Export setting** or clicking the **Export setting** button on the toolbar for backup purpose or to be imported to other device. The dialog of Export Setting is shown in the figure below.

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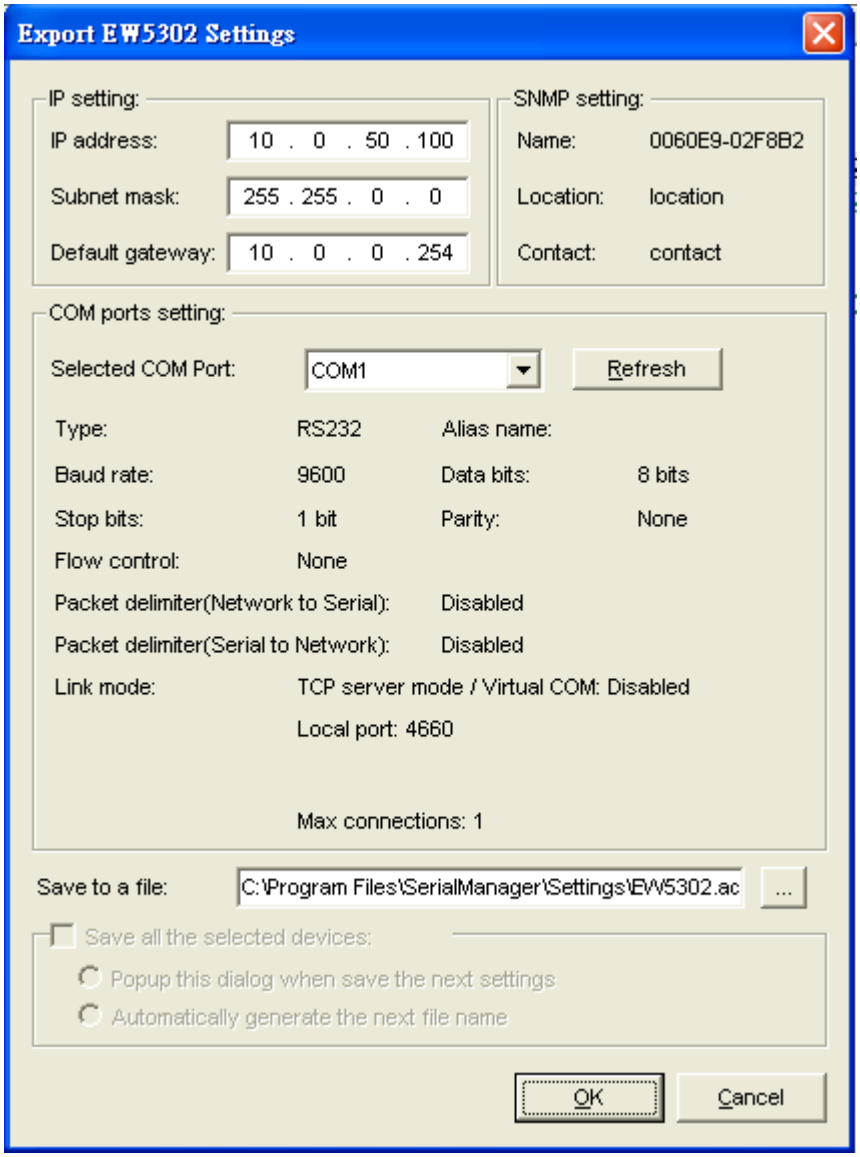
Export EW5302 Settings
IP setting:
IP address: 10 . 0 . 50 . 100
Subnet mask: 255 . 255 . 0 . 0
Default gateway: 10 . 0 . 0 . 254
SNMP setting:
Name: 0060E9-02F8B2
Location: location
Contact: contact
COM ports setting:
Selected COM Port: COM1
Refresh
Type: RS232
Alias name:
Baud rate: 9600
Data bits: 8 bits
Stop bits: 1 bit
Parity: None
Flow control: None
Packet delimiter(Network to Serial): Disabled
Packet delimiter(Serial to Network): Disabled
Link mode: TCP server mode / Virtual COM: Disabled
Local port: 4660
Max connections: 1
Save to a file: C:\Program Files\SerialManager\Settings\EW5302.ac
Save all the selected devices:
Popup this dialog when save the next settings
Automatically generate the next file name
OK
Cancel

The user can also select several devices at one time, and save the parameter information of these selected devices into a designated parameter file by selecting "Save all the selected devices".

**Configure by Browser**

Some devices are supplied with build-in Web servers, which will be used to configure similar to SerialManager software. Users can carry out any parameter setting directly through the submenu option “Config by Browser”, and a Web browser is shown in the figure below.

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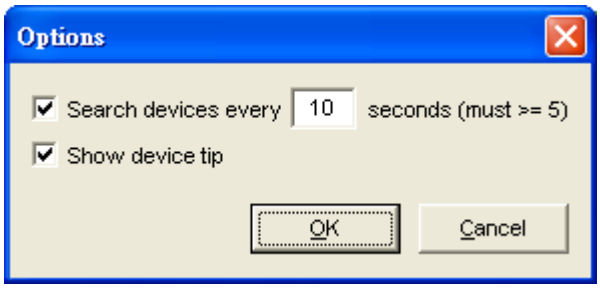
**Option**

The option is mainly applied to setting some common working rules of SerialManager utility, such as the device search time interval or whether to display any device information tip. The dialog is shown in the figure below.




### C.3.4. Security

This function is applied to the security protection for the network devices, so as to supply some necessary protection to a device for configuration modifying, configuration leading-in and leading-out, and some other important functions. Here three functions are mainly supplied, including: **Login**, **Logout** and **Change Password**, shown in the figure below.

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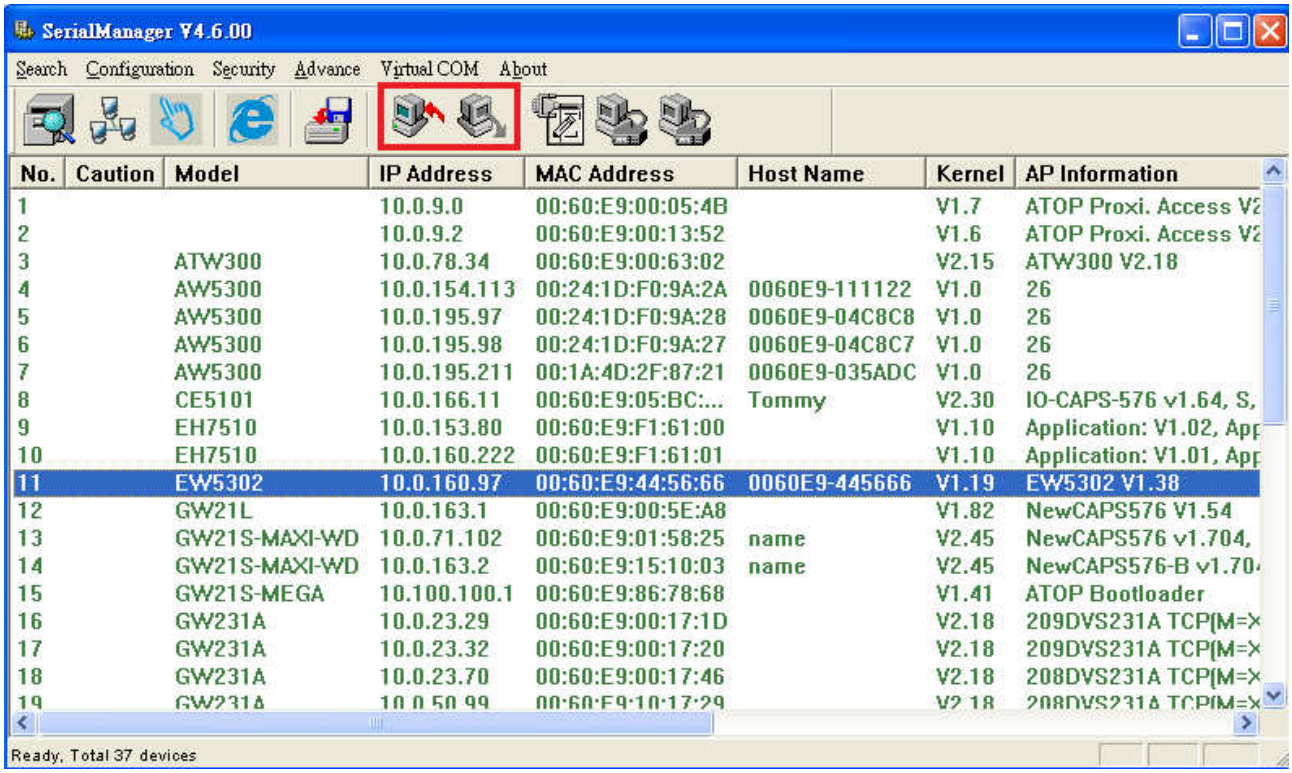


**Login**

This function is applied to the login to any network device, as some important devices can only be operated after a successful login, shown in the figure below. The user can also select several devices at one time, and log into them at the same time by selecting “Apply for all selected devices.”

Login
Enter a user name and password to login to this device.
Note: This function is only available for the standard Serial Server.
Device: EW5302 IP:10.0.50.100
User Name: admin
Password:
Apply for all selected devices
Login
Cancel

**Logout**

This function is applied to the logout from any network device, as the user should always carry out a logout after he/she has finished the operating action to any important device, shown in the figure below. The user can also select several devices at one time, and log out them at the same time by

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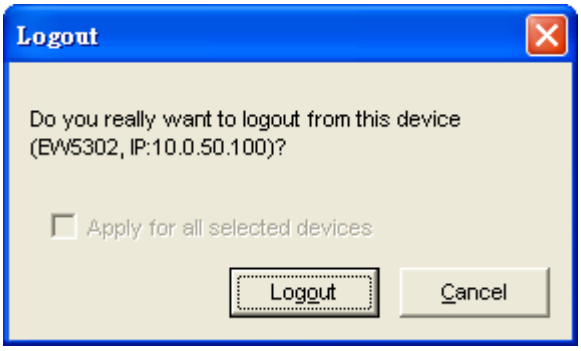
selecting “Apply for all selected devices.”




**Change Password**

This function is applied to modifying the password for logging in any network device, but can only be realized after a successful log-in, shown in the figure below. The user can also select several devices at one time, and modify their pins at the same time by selecting “Apply for all selected devices.”

### C.3.5. Virtual COM

Some devices are supplied with the function of virtual serial port, and the user can carry out any related setting through the option "Virtual COM". We have integrated Virtual COM settings in the Serial Manager. You can still select “Serial/IP Tools” to call original Virtual COM configuration utilities. You can either use this integrated Virtual COM working area or the original Serial/IP Tools to configure Virtual COM.

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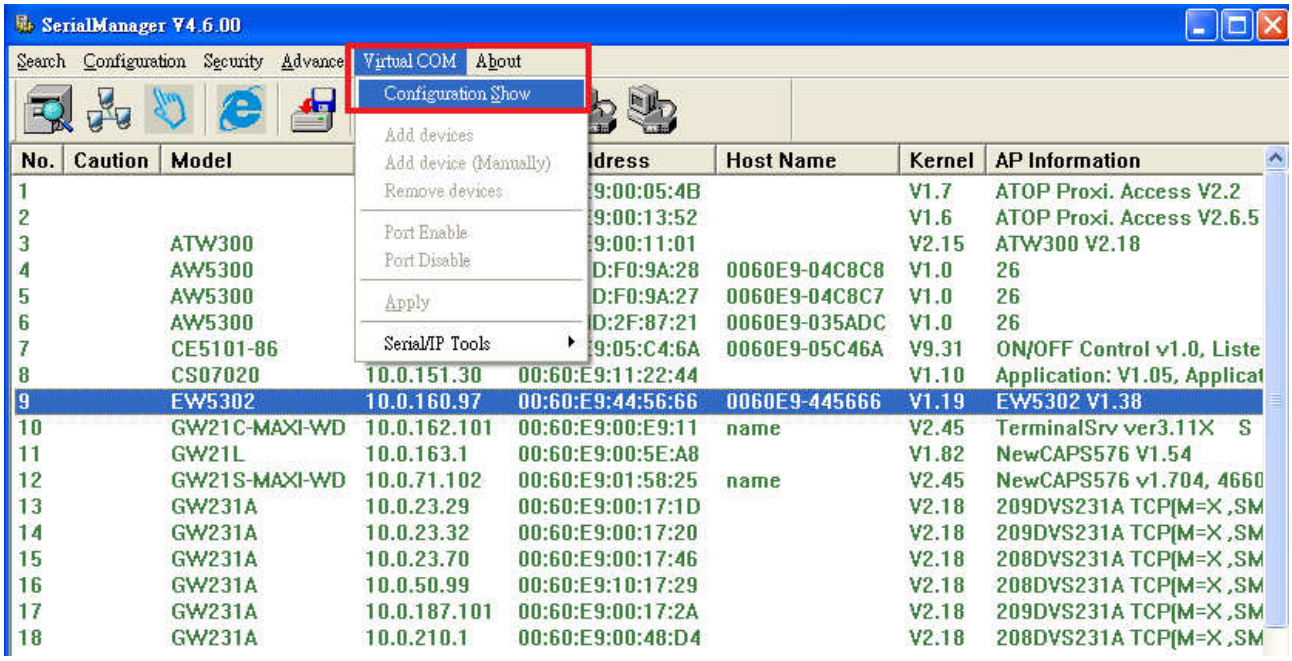
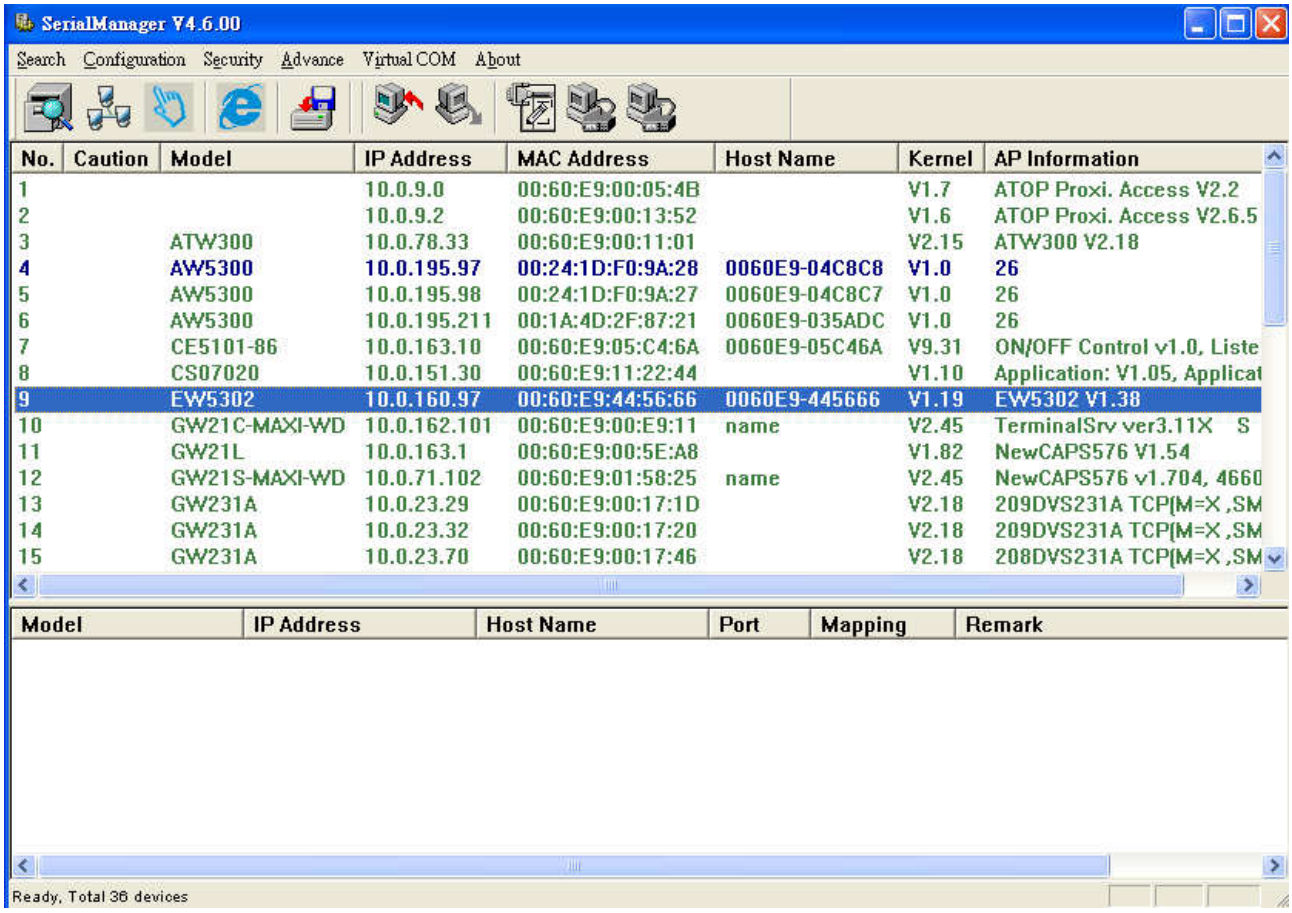

SerialManager V4.6.00
Search Configuration Security Advance Virtual COM About
Configuration Show
Add devices
Add device (Manually)
Remove devices
Port Enable
Port Disable
Apply
Serial/IP Tools
No. Caution Model Address Host Name Kernel AP Information
1 V1.7 ATOP Proxi. Access V2.2
2 V1.6 ATOP Proxi. Access V2.6.5
3 ATW300 V2.15 ATW300 V2.18
4 AW5300 0060E9-04C8C8 V1.0 26
5 AW5300 0060E9-04C8C7 V1.0 26
6 AW5300 0060E9-035ADC V1.0 26
7 CE5101-86 0060E9-05C46A V9.31 ON/OFF Control v1.0, Liste
8 CS07020 10.0.151.30 00:60:E9:11:22:44 V1.10 Application: V1.05, Applicat
9 EW5302 10.0.160.97 00:60:E9:44:56:66 0060E9-445666 V1.19 EW5302 V1.38
10 GW21C-MAXI-WD 10.0.162.101 00:60:E9:00:E9:11 name V2.45 TerminalSrv ver3.11X S
11 GW21L 10.0.163.1 00:60:E9:00:5E:A8 V1.82 NewCAPS576 V1.54
12 GW21S-MAXI-WD 10.0.71.102 00:60:E9:01:58:25 name V2.45 NewCAPS576 v1.704, 4660
13 GW231A 10.0.23.29 00:60:E9:00:17:1D V2.18 209DVS231A TCP(M=X ,SM
14 GW231A 10.0.23.32 00:60:E9:00:17:20 V2.18 209DVS231A TCP(M=X ,SM
15 GW231A 10.0.23.70 00:60:E9:00:17:46 V2.18 208DVS231A TCP(M=X ,SM
16 GW231A 10.0.50.99 00:60:E9:10:17:29 V2.18 208DVS231A TCP(M=X ,SM
17 GW231A 10.0.187.101 00:60:E9:00:17:2A V2.18 209DVS231A TCP(M=X ,SM
18 GW231A 10.0.210.1 00:60:E9:00:48:D4 V2.18 208DVS231A TCP(M=X ,SM

After you select Configuration Show, a new **Virtual COM working area** would appear.




Select the device you want to establish a Virtual COM connection with, you can select multiple devices. After the device is selected, right click in the blank working area and select “Add devices”.

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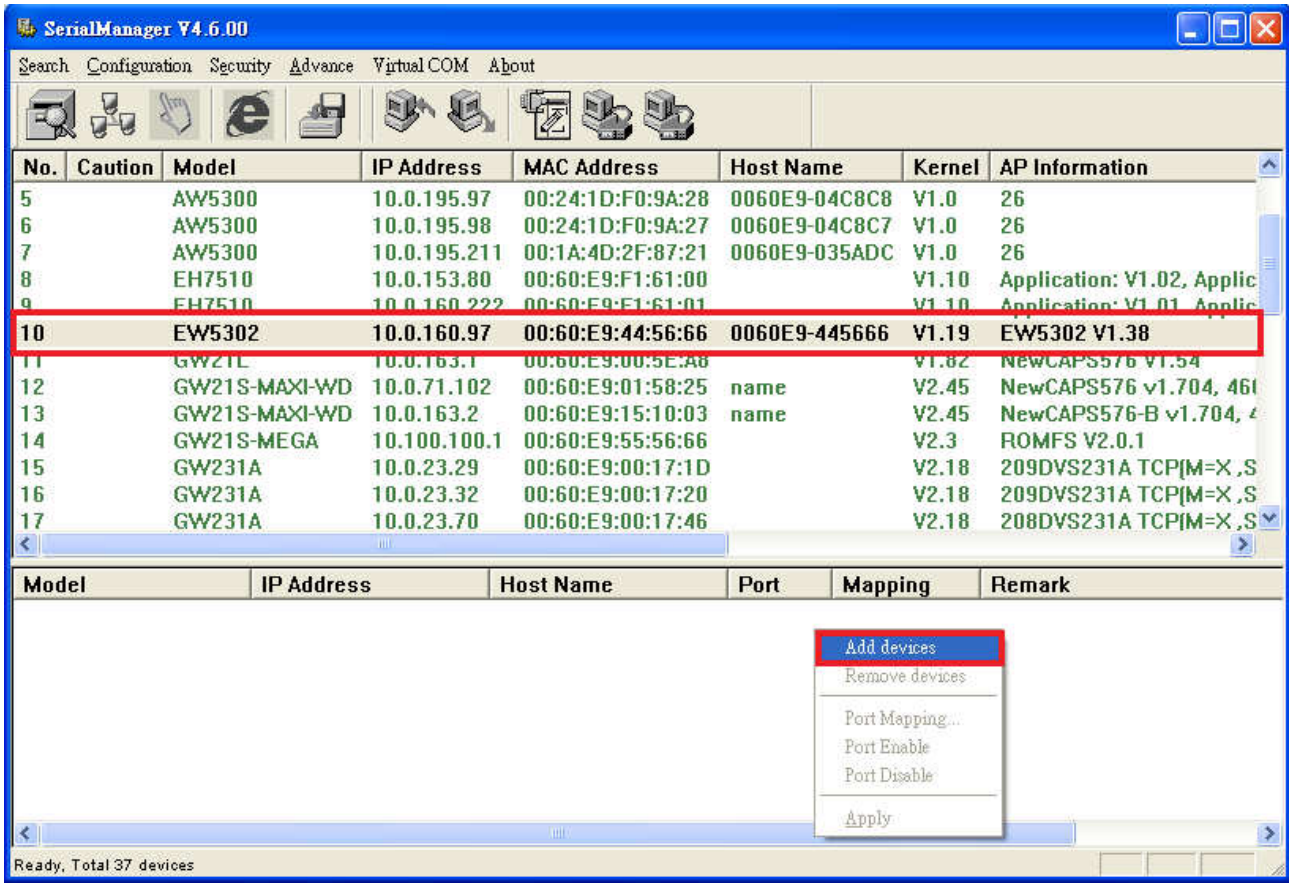
SerialManager V4.6.00
Search Configuration Security Advance Virtual COM About
No. Caution Model IP Address MAC Address Host Name Kernel AP Information
5 AW5300 10.0.195.97 00:24:1D:F0:9A:28 0060E9-04C8C8 V1.0 26
6 AW5300 10.0.195.98 00:24:1D:F0:9A:27 0060E9-04C8C7 V1.0 26
7 AW5300 10.0.195.211 00:1A:4D:2F:87:21 0060E9-035ADC V1.0 26
8 EH7510 10.0.153.80 00:60:E9:F1:61:00 V1.10 Application: V1.02, Applic
10 EW5302 10.0.160.97 00:60:E9:44:56:66 0060E9-445666 V1.19 EW5302 V1.38
12 GW21S-MAXI-WD 10.0.71.102 00:60:E9:01:58:25 name V2.45 NewCAPS576 v1.704, 46
13 GW21S-MAXI-WD 10.0.163.2 00:60:E9:15:10:03 name V2.45 NewCAPS576-B v1.704,
14 GW21S-MEGA 10.100.100.1 00:60:E9:55:56:66 V2.3 ROMFS V2.0.1
15 GW231A 10.0.23.29 00:60:E9:00:17:1D V2.18 209DVS231A TCP(M=X ,S
16 GW231A 10.0.23.32 00:60:E9:00:17:20 V2.18 209DVS231A TCP(M=X ,S
17 GW231A 10.0.23.70 00:60:E9:00:17:46 V2.18 208DVS231A TCP(M=X ,S
Model IP Address Host Name Port Mapping Remark
Add devices
Remove devices
Port Mapping...
Port Enable
Port Disable
Apply
Ready, Total 37 devices

The device would be added. Right click on any port and a menu with show. You can remove the device from the Virtual COM working area by selecting “Remove devices.” You can disable Virtual COM for a specific port by selecting “Port Disable”. Remember to click **Apply** to apply any changes.

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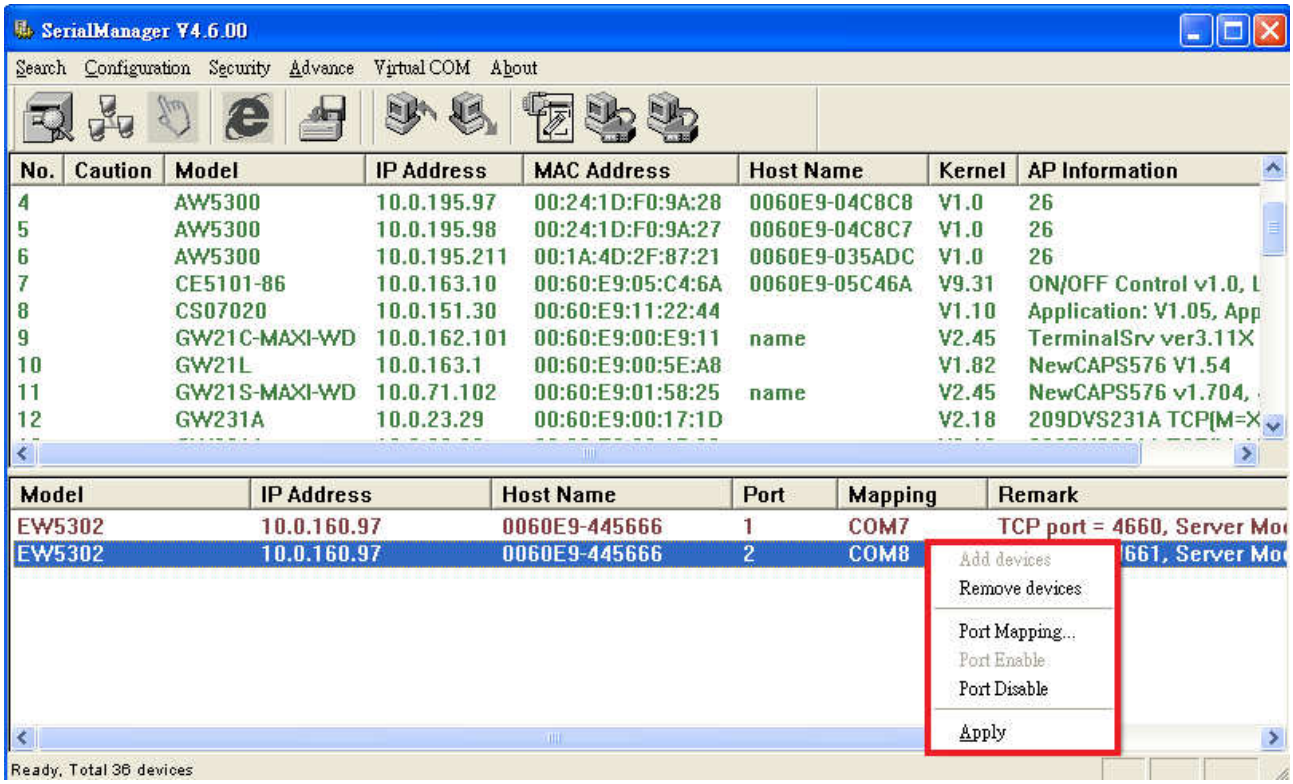
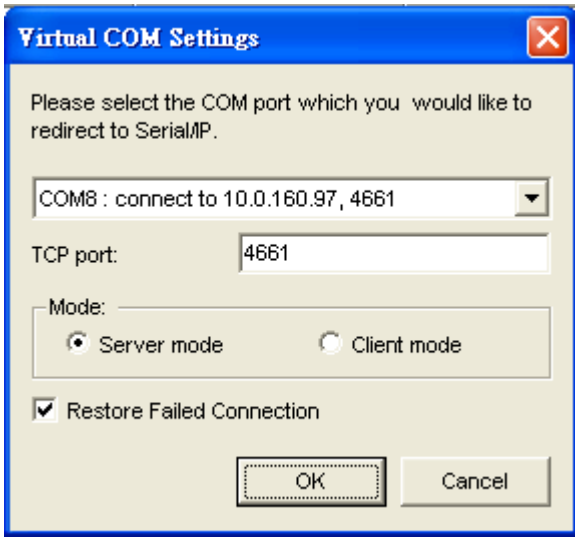

SerialManager V4.6.00
Search Configuration Security Advance Virtual COM About
No. Caution Model IP Address MAC Address Host Name Kernel AP Information
4 AW5300 10.0.195.97 00:24:1D:F0:9A:28 0060E9-04C8C8 V1.0 26
5 AW5300 10.0.195.98 00:24:1D:F0:9A:27 0060E9-04C8C7 V1.0 26
6 AW5300 10.0.195.211 00:1A:4D:2F:87:21 0060E9-035ADC V1.0 26
7 CE5101-86 10.0.163.10 00:60:E9:05:C4:6A 0060E9-05C46A V9.31 ON/OFF Control v1.0,
8 CS07020 10.0.151.30 00:60:E9:11:22:44 V1.10 Application: V1.05, App
9 GW21C-MAXI-WD 10.0.162.101 00:60:E9:00:E9:11 name V2.45 TerminalSrv ver3.11X
10 GW21L 10.0.163.1 00:60:E9:00:5E:A8 V1.82 NewCAPS576 V1.54
11 GW21S-MAXI-WD 10.0.71.102 00:60:E9:01:58:25 name V2.45 NewCAPS576 v1.704,
12 GW231A 10.0.23.29 00:60:E9:00:17:1D V2.18 209DVS231A TCP(M=X
Model IP Address Host Name Port Mapping Remark
EW5302 10.0.160.97 0060E9-445666 1 COM7 TCP port = 4660, Server Mo
EW5302 10.0.160.97 0060E9-445666 2 COM8 661, Server Mo
Add devices
Remove devices
Port Mapping...
Port Enable
Port Disable
Apply
Ready, Total 36 devices

If you select Port Mapping… , a new window would show. You can setup the Virtual COM accordingly.




### C.3.6. About

This function is mainly applied to displaying information of the **SerialManager** utility, shown in the figure below.

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